



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

000
5

wrink problem

FROM
THE BUSINESS
HISTORICAL
SOCIETY INC



THE GIFT OF
The Heirs of
George C. Dempsey

TRANSFERRED
TO
HARVARD COLLEGE

LIBRARY

Alcohol and Tobacco.

ALCOHOL:
ITS PLACE AND POWER

BY JAMES MILLER.

THE
USE AND ABUSE
OF
TOBACCO.

BY JOHN LIZARS.

NEW YORK:
National Temperance Society and Publication House,
58 NASSAU STREET.
1880.

Soc 4700.160.5



HARVARD COLLEGE LIBRARY
FROM THE HEIRS OF
GEORGE C. DEMPSEY

BRS
Gift of
The Heirs of
George C. Dempsey

ALCOHOL

I NEVER GOT A PATIENT BY WATER DRINKING, BUT THOUSANDS
BY STRONG LIQUORS. — *Dr. Gregory.*

TOBACCO.

SNUFFING, SMOKING, AND CHEWING, ARE BAD HABITS, AND WE
ADVISE ANY GENTLEMAN WHO IS NOT HOPELESSLY ADDICTED
TO EITHER, TO GIVE IT UP. — *Medical Circular.*

NOTICE.

THE Publishers, in sending forth this small volume, deem it due to themselves, as well as to the Authors of both the treatises included in it, that some explanation should be given of the reason of their connection. The simple fact of their being works on articles so baneful in their effects on the physical and mental constitution of Man, is considered a sufficient apology for their being issued together; and they hope that both the little manuals may prove, by their perusal, an estimable blessing to the thousands of the present generation who are daily falling victims to the abuse of both Alcohol and Tobacco.

ADVERTISEMENT.

THE Directors of the Scottish Temperance League, anxious to have a Work of high authority on the Medical view of the Temperance question, made application to Professor Miller to prepare a treatise on the subject, who most cordially complied with their request. In publishing the Work, the Board feel it their duty to state that the learned Author presented the MS. as a gift to the League, only stipulating that it should be published at such a price as would bring it within the reach of all classes.

LEAGUE OFFICE,
108 HOPE STREET, GLASGOW.

(ix)

17-
giving
to show
as a
to show
being

(xi)

CONTENTS.

| | Page |
|------------------------|------|
| INTRODUCTION | 13 |

ALCOHOL: ITS PLACE.

| | |
|-----------------------------|----|
| I.—As a POISON | 24 |
| II.—As a MEDICINE | 42 |
| III.—As FOOD | 62 |
| IV.—As a LUXURY | 79 |

ALCOHOL: ITS POWER.

| | |
|---|-----|
| I.—As a POISON | 94 |
| II.—As a MEDICINE | 96 |
| III.—As FOOD | 99 |
| IV.—As a CONDIMENT | 100 |
| V.—As a LUXURY | 101 |
| VI.—As a SUPPORT IN LABOR OF THE BODY | 106 |
| VII.—As a SUPPORT IN LABOR OF THE MIND | 118 |
| VIII.—As a SUPPORT IN ENDURING COLD | 130 |
| IX.—As a SUPPORT IN ENDURING HEAT | 138 |
| X.—As a MEANS OF AVERTING DISEASE | 146 |
| XI.—As a MEANS OF PRODUCING DISEASE | 151 |
| XII.—As a MEANS OF CHERISHING AGE | 153 |
| XIII.—As a MEANS OF PROLONGING LIFE | 157 |
| XIV.—As AFFECTING THE MIND | 158 |
| XV.—As an INSTRUMENT OF VICE | 161 |
| XVI.—As a SPECIAL OPPONENT TO MORAL REFORMATION | 168 |
| XVII.—IN CLINGING TO ITS VICTIM | 169 |
| CONCLUSION | 170 |

INTRODUCTION.

DRUNKENNESS owns many a cause, and calls for many a cure. Many things are to be done, and many men are needed to do them. The principle of "division of labor" is fully recognised in this matter.

One of the most obvious causes of drunkenness consists in the strange drinking customs of the people. Strong drink not only forms a customary part of their ordinary diet, but whenever any peculiar occasion emerges — be it of grief or sorrow, business or pleasure — an additional amount of strong drink must forthwith be consumed, by all and sundry, if the entertainer would escape censure or contempt.

Sensible men have come to see that if drunkenness is to be stayed in its fearful sweep, carrying death and devastation in its track, these drinking customs must be greatly reformed; and means have accordingly been adopted to enlighten the public mind on the sad mixture of folly and evil which characterizes them. Good work has been done in this direction. Able authors have expounded the case plainly and powerfully; and reference may be specially made to "The Physiology of Temperance and Total Abstinence," by Dr. Carpenter, and "The Pathology of Drunkenness," by Dr. Charles Wilson. Both of these treatises are excellent; telling and trustworthy. But a desire has been expressed for

a more homely exposition of the matter, and one more readily accessible to the popular hand and mind. Another workman, accordingly, is needed for this particular department; and I have not felt at liberty to decline the call addressed to me. The whirl of many important avocations, the inevitable inroads on such snatches of leisure and relaxation as may be possible in such a life as mine, might have been pleaded as ground for a refusal. But perhaps such excuses are in most cases sufficiently met by the common proverb, "Where there's a will there's a way." And having a sincere and hearty "will" to help on the good cause of temperance, I have not sought the shelter of any such plea, but rather am content to find and ferret out the "way."

Like apologetics might now be urged on you, gentle reader, deprecating your harsh criticism, and craving a generous forbearance in regard to a task hastily and imperfectly done. But even here I would be silent — satisfied that whatever failings may mar the attempt, the motives which led to it were honest, disinterested, and sincere. Throw aside prejudice — for a time sheathe your critical acumen — give me your patient attention, and, however much I may now and then unintentionally offend in minor points, I hope to convince you that three-fourths of the men and women of Scotland are ill-informed in this vital matter, and daily reaping most disastrous fruits of this ignorance, in both themselves and others

A short preliminary statement must be made, giving a general idea of the more ordinary functions of the human body in health.

Every function of the living man — whether thinking by help of his brain, for example, or working by means of his muscles, or secreting through the agency of his glands, produces a corresponding disintegration of the appropriate structure; a certain amount of nervous, muscular, or secreting tissue crumbles down, and, for the time being, is rendered useless to the living economy, and, besides, its presence any longer — at least in that condition — would prove hurtful. A two-fold action is required: first, to supply renewal for the waste; and second, to have the wasted material suitably removed. The latter object is accomplished by the blood, which, by the help of veins and absorbents, receives the used up stuff into its backward or venous current, for the purpose of consuming part by the action of oxygen in the lungs, and disposing of what remains by means of the organs of excretion — the liver, bowels, skin, and kidneys. The renewing supply of the waste, from tear and wear, on the other hand, is performed by the arterial blood, in its onward current throughout the frame. Filtering through very minute and numerous vessels, called capillaries, it allows that portion of it which is needful to compensate for the ever-recurring loss to escape, and come in contact with and be applied to the parts which need it. The waste is constant — greater according to the amount of exertion made, but always more or less; and the supply must not only be constant too, and proportional in amount, but also of a *certain quality*. Send venous blood to muscle, and you mar both its structure and its working. Do the like by the brain, and the result is similar; you disorder its function

invariably, and may easily enough silence it for ever. To nourish, blood must be arterial. Having nourished, it becomes venous — not only useless but noxious to the organs that need nourishment, and fit only to be sent back through the liver and lungs, there to undergo such changes of giving and taking as shall once more qualify it for its work of supply. In this backward course, as already said, it receives and is mingled with the used-up material, whose loss its next wave has to compensate. And whatever tends to send on this doubly-defiled current over the whole body, with an imperfect performance of the purifying process — technically called *depuration* — must inevitably cause most serious interference with health and longevity.

But the blood is not a mere circling fluid, “self-contained.” In every circuit it makes, it loses largely, both in quality and quantity; and *its* loss must be made up. This is done through the stomach. Food is taken in there, masticated, softened, and mixed up, so as to be in a state of suspension and solution. The gastric juice — or peculiar secretion of the stomach — mingles with it; and the *digestion* is carried on, as if in a stew-pan. Having become a pulpy fluid, called *chyme*, the food moves slowly into the alimentary canal; there it receives farther additions — bile from the liver, and juice from the pancreas or sweet-bread; the nutritious portion, called *chyle*, is taken up by the absorbents, whose various tubes concentrate into one common duct; and this empties its contents into the venous returning blood, just before it begins its purifying circuit through the lungs. So the feeder is fed.

But some things — alcohol happens to be one, and the poison of asps another — are impatient of so round-about a journey; they must be conveyed to the blood at once. They will not wait to be digested; but, taken up as they are by the veins of the stomach, are carried — little if at all changed — into the general venous circulation, and do their work there, whatever it may be, with almost instantaneous rapidity.

What takes place ordinarily in the lungs requires a little special consideration. The blood having suffered exhaustion and loss in its work of nourishing all the various parts of the body, having received a supply it greatly needed from the stomach and bowels, in the form of chyle — as a help; and having got also, what in some respects it might have seemed to have been better without, the used-up material refuse of life and working — as a burthen, — it passes by the right side of the heart through the lungs; and in the cell-like ramifications of these, it is brought in all its motley mass into contact with the air, which for that purpose has been taken in by the wind-pipe. This air parts with its oxygen; a large proportion of which unites with carbon and hydrogen in the blood — carbonic acid and watery vapor being extricated in consequence. This important change, chemically called *oxidation*, is really a *burning*. Though not accompanied by light or flame, it is, like ordinary combustion, productive of heat; and, in consequence, it will be readily understood that the process of respiration, when duly performed, fulfils two important objects — ærating the blood, and at the same time helping to maintain the due temperature of the body.

But what is it that is thus oxidized, or burnt, by the breathed air? Two things. The used-up material of the structures, returned in the venous circulation, is either burnt off, or so modified as to be converted into the most suitable forms for final expulsion from the blood. The greater part is thrown off in the form of carbonic acid and watery vapor, while the rest, imperfectly oxidated, moves on into the general circulation, to be dealt with exhaustively in the lungs on its next transit, or to be disposed of by the liver, bowels, skin, and kidneys. This treatment of the "waste" is essential, and must be done. But the doing of it is not enough, of itself, to maintain the general temperature. And so a portion of food, digested in the stomach, and received by the blood as chyle, is specially devoted to the process of burning too; that portion consisting of such articles of diet as contain no nitrogen: oil and sugar being special examples.

In this wondrous living factory of ours, the waste material is not only burned off—as farmers do "wrack" on the surface of their fields—there is besides a special heating apparatus constantly at work; and so, by the two-fold process, the blood is purified of its hurtful matter, while the whole frame is maintained in its due heat. Let either part of this process flag, and evil must ensue. Burn off all the blood's impurity, yet have an insufficient supply of extra fuel from the stomach—the body must grow cold.* Send an inordinate amount of peculiarly

* It is not alleged that the whole of the heating process is done in the lungs. On the contrary, there is good reason to suppose (as will immediately be stated,) that every act of nutrition and disintegration of tissue throughout the body—every change from fluid to solid, and

combustible* material from the stomach, so that *it* shall do almost all the burning — then the blood's impurity cannot be sufficiently consumed; venous blood will come to circulate more or less, instead of arterial; and the most serious consequences cannot fail to happen. The kidneys, and skin, and liver, will make great exertions, no doubt — as excretory organs — to throw out the evil thus forced through the system; but they will not wholly succeed; and they themselves will suffer injury in the strain. The blood will remain impure, important organs of the body will be thrown into a state of disorder, and disease of a serious kind may be established.

But the whole of the oxygen taken in by the lungs is not thus accounted for. About a fourth passes into the system, with the blood, without being spent at all on oxidation of the "waste." This portion of the oxygen cannot well be traced in its course; but there is good

from solid to fluid — is accompanied with disengagement of caloric. But obviously while much of the "oxidation" is done *in* the lungs, almost all the oxygen enters *by* the lungs, whereby the "oxidation," or burning is performed.

* Whether it be because alcohol is "peculiarly combustible," or not, may not be quite determined; but Prout and others have experimentally ascertained that less carbonic acid than usual is evoked during the presence of alcohol in the blood, and that that fluid is decidedly darker than in persons untainted by the "poison." It would almost seem as if alcohol, circulating in the blood, to a considerable extent suspended, for the time, the chemico-vital processes proper to the fluid in its normal state. Thus the oxidation of the phosphorus of waste tissue is sometimes so interrupted by alcohol, that the body of the drunkard smells of phosphorus, his breath presents a visible phosphorence, and his urine is luminous in the dark. As will afterwards be seen, this is the only luminosity which alcohol imparts to the debauchee.

reason to believe that it acts an important part in the change of the nutritious part of the arterial blood into living tissue — supplying renewal for the “waste ;” and that it is again active in the crumbling down of that tissue — constituting the “waste ;” in both actions evolving caloric. And so here is a third way of maintaining the general temperature.

A word as to the action of poisons. Applied to a part, poisons have various effects. Some, like potass, acids, and other caustics, destroy all structure ; others, like alcohol and ammonia, irritate and inflame ; others, as prussic acid, impress mainly the nerves.

The constitutional effect is also various. The poison, more or less rapidly absorbed into the blood, might be circulated equably over the whole system. According to a strange law, however, such diffusion does not occur ; but, on the contrary, certain poisons seek out certain parts, and act on them primarily and chiefly — drawn thither by a vital, as if by a chemical attraction. Tobacco, digitalis, and the upas poison, for example, act specially upon the heart ; arsenic affects the bowels, and mucous membranes in general ; cantharides, the kidneys ; iodine, the glands ; strychnia, the spinal cord ; alcohol, opium, and all narcotics, the brain.

Some kill directly and at once ; others more remotely, by the induction of secondary disease.

Some exert definite effects, dose by dose ; others produce their special results only after frequent and continued repetition.

Some produce continuous results ; others, as the malaria, afford intervals of apparent immunity.

ALCOHOL: ITS PLACE.

“LET everything have a place, and everything be in its place.” This is a good old Scottish maxim, pregnant with both thrift and wisdom. And had it but its full sway over the common household thing whose ominous name heads the page, the world were many times fairer, richer, and better, than it is this day.

But in order to put and keep anything in its proper place, we must ascertain and determine what that place is. And, accordingly, let us at once proceed to make some inquiry in this direction, so far as alcohol is concerned.

Under the term “alcohol,” is included, let it be distinctly understood, every kind of intoxicating drink. All the varieties of spirits, wines, and malt liquors, are the same as to their intoxicating quality; that invariably depends upon the presence of alcohol. This may be more or less diluted, mixed, colored, and flavored; or, as in the case of malt liquors, combined with a small quantity of nutritive material;* but it is always present, and according to its amount is the intoxicating

* Very small in the best of them, especially if you exclude the saccharine stuffs. For, according to Liebig, suppose a man to consume, daily, eight or ten quarts of “the best Bavarian beer,” he will obtain from it in the course of twelve months, no more than the same quantity of nutritive constituents contained in a five-pound loaf of bread.

power of the beverage. A man is apt to draw a broad distinction — greatly in his own favor — between himself drinking beer and another drinking brandy, as a daily habit; but the truth is, that both are drinking the same thing, only in a different guise and dilution; chemically and practically, there is much the same difference as between one who drinks spirits “neat” and another who drinks his allowance of the same thing largely “watered.” The one drinks alcohol slightly diluted; the other drinks alcohol much diluted, and somewhat modified by flavor; but both are drinking alcohol. Not a day passes but you may hear, “I am no drinker; for years I have never touched spirits; I take nothing but wine.” The man who so expresses himself may be in the habit of taking his pint of sherry, or quart of claret, daily, or all but daily; and, while honestly convinced that he is touching no “spirits,” is really swallowing the same amount of alcohol as if he had taken a glass or two of raw brandy or whisky instead. He believes that spirits are injurious; he would not take *them* for the world; yet all the while he is taking them; and surely it is of great importance that he should be undeceived. Let it be well understood then, at starting, that all intoxicating beverages contain alcohol, as their characteristic and essential ingredient; and however they may vary in taste or appearance, their chemical constitution as intoxicants is practically the same. Beer, no doubt, is less hurtful than brandy — wine less dangerous than whisky; but chiefly because they contain less alcohol.

And what is this alcohol? Whether pure or diluted,

where should it stand in the arrangement of things? As a poison? As a medicine? An article of food, or of luxury? In a household we can readily imagine — say in a hotel — a long list of articles of diet fit and offered for use; a medicine-chest, too, with a carefully-arranged catalogue of its contents; and hung up in some conspicuous spot, for readiness of access in emergencies, perhaps a tabular list of the most common poisons, with short and simple rules for their counteraction. Into which of these lists ought alcohol to go? The question is not, How do men generally consider it, and in what category is it placed? That were easily answered — though somewhat unsatisfactorily. Most men call it *food*, and use it daily as such, in some form or other. Others esteem it a luxury; and their use of it accordingly is but occasional. A few regard it medicinally, and are ready to give it a high character as an assuager of the ills of life — all but a panacea. Few, very few, ever dream of it being a poison.

Let us see how the truth lies. Can it be that men are using as an article of food, daily and freely, what is essentially a poison? In cooking, were an appreciable amount of verdigris from the pot or pan to be mingled with their stews and boils; in their tea and coffee, were the water to contain a grave proportion of lead from the pipe or cistern; in the flavoring of the sweet course, were the ratafia to give out a decided quantity of prussic acid, — the effects would tell, inquiry would be made, and the contamination would be avoided. And can it be that men are daily mingling with their food, in no niggard amount, what is as truly poisonous as the

prussic acid, copper, or lead — taking little note of its evil effects, and taking no means to remove the adulteration? Let us see.

ALCOHOL AS A POISON.

Alcohol is a poison. In chemistry and physiology, this is its proper place.

Many readers may receive this dogmatic assertion with a "Pooh, pooh"—"Fanaticism and folly"—"We know better." Let me support the assertion, therefore, by authority. "The sedative action of alcohol on the brain," says Christison—and we know no higher authority, either as regards poisons or the articles of the materia medica—"constitutes it a *powerful narcotic poison*. For its effects as such, if rapidly brought on by a large dose, *there is no antidote known*—the only efficacious treatment consisting of speedy evacuation of the stomach, and the employment of brisk external stimuli."

Now let us inquire as to the effects of this formidable agent. Obviously, they will vary according to the age and condition of the recipient, and especially according to the manner and amount of the administration.

I. Alcohol absolutely pure is seldom if ever taken internally. To make it at all tolerable to the stomach, it must be diluted; and the strongest brandy, whisky, or other "spirit," contains a large proportion of water—thirty, forty, or fifty per cent.

But though thus modified, a large quantity in the adult, or a small quantity in the child, may prove rapidly fatal. It is almost at once absorbed by the veins of the

stomach, and, mixing with the blood, is carried to all parts of the body, affecting certain of these very specially—namely, the nervous centres.* These are paralyzed; the heart stops, and life ceases. A man quaffs a quart of brandy almost at a draught, tumbles down, and dies on the spot. The shock of the large dose of alcohol on his nervous system, with which it is almost immediately brought into direct contact through absorption into the blood, acts like a blow on the head, or a kick on the stomach. Prussic acid is not more deadly.

To obtain some idea of the rapidity with which alcohol dashes through every obstacle to reach the brain—the material organ of reason, and the special object of the poison when once it gains access to the body—consider the following experiment of Dr. Percy:—He injected about two ounces and a half of alcohol into the stomach of a dog, and the animal dropped dead almost instantaneously. As soon thereafter as he could remove the brain—an operation which occupied only a few minutes—and place it in an apparatus for distillation, he by that process extracted from it a notable quantity of the alcohol—more than from an equal weight of any other part of the body, or of the blood itself.

II. But the dose may not be such as to kill at once by shock. The bottle, we shall suppose, is consumed more leisurely, and by and by the man is found in a state closely resembling apoplexy—with suffused face,

* “I can’t drink spirits, or even wine; *it goes to my head*. I find it instantly go to my head.” The words are right, literally, as well as metaphorically, though the speaker thinks, perhaps, only of the latter sense.

laboring pulse, heavy, noisy breathing, and total insensibility. What has happened? The alcohol absorbed has reached the nervous centres as before, and has all but paralyzed their functions; in consequence, the heart and lungs are both acting most imperfectly; the blood is failing to receive its due proportion of oxygen in its oozy passage through the lungs, and is, besides, directly altered for the worse by the alcohol's actual presence in it. The man is choking gradually, as if with a rope round his neck, or a clot of blood in his brain. The hand of alcohol is on his throat; breathing becomes slower and slower, the heart beats more and more faintly, the body grows cold, and, in no long time, all is still in death.

Peculiar circumstances may render such an event possible under even a comparatively small dose. Ordinary "intoxication" may not have occurred, yet the alcohol may so injuriously determine to and act on the brain, as to cause congestive apoplexy, modified by symptoms of poisoning. And under this life may give way, as in the following case:—A gentleman supped out, drank several tumblers of toddy, came home, and went to bed. In the morning he was found insensible. A physician, hurriedly called, at once recognised the symptoms as those of narcotic poisoning, and treated the patient accordingly. Reaction began, but failed, and death occurred within a few hours. On dissection, no organic lesion or other cause of death was detected. The contents of the stomach were carefully secured, and made over to the care of a skilful chemist. Morphia was suspected, but nothing could be found — save alcohol.

III. In the first class of cases, death is as *ly shock*; in the second, by *coma*; and examples of both are by no means rare. There is a third class, however, far more numerous. The man is stronger, the dose is less, or more slowly taken; and, after a heavy stupor—far more deep and dangerous than ordinary sleep—the drunkard slowly evinces signs of returning consciousness. He has been “dead drunk,” and all but dead actually. The choking was begun and going on as before; but, fortunately, the poisoning “took a turn,” and the poison itself having been more or less rapidly thrown out of the system by the organs of excretion, as well as burnt off in the lungs, the brain lightens, and the conditions of life are restored. Gradually the man returns to something like his wonted self, but retaining many a plain trace of his narrow escape. He was all but poisoned. What did it? Alcohol. Had he died, you might have found, on dissection, in him as well as in each of the former victims, the alcohol unchanged, not only in the general mass of blood, but specially in the substance of the brain—a texture for which it has a peculiar affinity.

These are examples of plain *poisoning*—a common word, which carries an alarming sound; but put it into a classical shape, and, strangely, it seems much less formidable. “Was he *poisoned*?” “Oh, no; only *intoxicated*.” And yet, literally, the words mean the same thing.

IV. *Intoxication*! We need not describe what every one has seen, and not a few have felt. Let us, however, trace the action of the agent in this too common variety of alcohol's effects. Reaching the brain, more gradually

and in smaller quantities than in the previous examples, the alcohol acts as a stimulant at first. The intellectual functions are excited, as shown by gaiety, talkativeness, animated expression, play of fancy, and increased rapidity as well as variety of thought. But the paramount function of *voluntary control*—the great distinguishing characteristic of the human mind—is already affected otherwise than by increase or exaltation. While perception, memory, and imagination, are specially excited, the will, almost from the first, is sensibly impaired. The mind suffers in its best part, through even slight tampering thus with the material organ wherewith it is connected.

The heart is roused, and beats quicker; the general circulation is hastened, and the whole frame feels warmer, stronger, and better.

As the dose is continued, its effects are not only observed in the functions of the anterior and upper parts of the brain—its intellectual portion—but extend to the deeper and posterior parts, connected with special sense and muscular power. Sight and hearing are affected, the limbs grow weak and tottering, the head swims, the tongue refuses distinct articulation. At the same time, intellectual excitement becomes more and more decidedly intellectual perversion, partaking of the nature of delirium; reason is at a discount, and voluntary control placed more and more in abeyance. What is specially human is lessened, what is merely animal is intensified; the passions rise rebelliously, and defy all moral control; and the man becomes, under his own act, what the law has quaintly termed him, "*voluntarius*

demon." He is temporarily *insane*, and fitted for any act of violence to himself or others.

But as the poisoning material filters on into the frame, its effects advance still farther. All semblance of stimulation, in any part or way, is over now. Intellect is all but departed; and muscular power, as well as the special senses, are gone or going too. Besides involvement of the whole brain, the upper part of the spinal cord is suffering; and, in consequence, the heart is weakened, the pulse is laboring, the respiration is oppressed; the face that awhile ago was pale and haggard, is growing swollen and livid; and unless a halt is called now, matters will speedily arrive at the condition of No. III.—life in peril by coma.

The best that can happen is a heavy death-like sleep of long duration, with an awakening to fever of body and misery of mind.

Certain advocates of alcohol talk in a somewhat odd fashion of such an event happening "occasionally." They admit that intoxication is wrong, in every sense; but they protest that its "occasional" occurrence ought not, in all fairness, to shut out the man's drinking from the claim of being reckoned compatible with "moderation." And taking this for granted, they then go on to speak complacently of how it is to be atoned for, thus: "which excess he sleeps off that night—or pays for by a headache next morning, and hears no more of it." Indeed! He has a heavy sleep, no doubt; but he does not "sleep *it all off*;" some remains. He pays a heavy bill in the morning, too; that is certain. But can he show a discharge in full? No, no. His creditor is not

so easily satisfied. The headache is only a sum in hand; one instalment of the price of the pleasure. There are other payments to be made by and by. "He hears more of it," to his cost; as will duly appear in the sequel.

V. Lead, given in small but frequently-repeated doses (considerably short of perilling life at once by poisoning), ultimately paralyzes the muscular system; arsenic, similarly used, produces serious consequences upon the mucous membranes; and alcohol, in a smaller dose than at any time to threaten a fatal poisoning, yet by frequent repetition may produce a most damaging result upon the entire nervous system — not accumulating in substance within the body, as these other poisons may do, but keeping up a constant, and consequently cumulative action on that part of the frame. This state has been called "*alcoholismus chronicus*," or "chronic alcohol-poisoning." And it might be termed *alcohol-founder*.

The whole body trembles, but especially the hands, the limbs, and the tongue; eyesight and hearing are impaired; the skin is affected by various morbid sensations; the mind at best is weak, and often disordered; general debility increases; sleep is capricious, disturbed, and unrefreshing; strength, appetite, flesh, comfort, energy — all disappear; there is no relief, save what is both temporary and delusive — in continuance of the poison; the stomach rejects food, and puts forth foul secretions of its own; startings seize the limbs; epilepsy may follow; and the man may die. Arsenic could not sap life more surely; and all may be done, be it remem

bered, without the victim having ever once been absolutely *drunk*.

VI. This is sad work with the body. But the mind, too, is not without its danger and damage. In the course of the chronic poisoning just spoken of, or in the midst of a more active and acute debauch, the condition of "insanity," to which allusion has been made (p. 28), may not prove temporary—that is, passing off with the other immediate effects of the drunkenness—but may be prolonged. The man becomes sober, but is mad; and may remain so for some time. This madness—technically termed "*delirium ebriosum*"—is usually of an active and dangerous kind, and may entail much evil upon the victim by reason of violence done to himself or others. And, besides, it is liable to become permanent—changing its character, and settling down into confirmed mental disease.

VII. Or the mental affection may be of a different form still—what is termed "*delirium tremens*":—the body weak, the nerves unstrung, the mind a prey to all manner of rapidly-shifting delusions, with suspicion and fear; violence to others improbable, but injury to self not unlikely. This may be the result of an occasional bout of hard drinking, or may form a part of the "chronic poisoning." Ordinarily, it is connected with some aggravated excess in the habitually intemperate.

As a sample, take a case—in some respects curious. A gentleman of middle age, and active business habits, had for years been intemperate; and more than one attack of *delirium tremens* had imperilled his life. When first I saw him, he was in his shirt, hopping incessantly

from chair to chair, in order to avoid myriads of snakes that were crawling on the carpet. Then the vision changed upon him, and he rushed about more violently to escape from men following him with sharp knives. Suddenly he leaped upon the bed, arranged his limbs quietly, and scarcely breathed. He told us he was dead, and read out an announcement of his sudden and unexpected decease, from the page of an imaginary *Courant*, concluding with, "Friends will please to accept of this intimation." So he lay for some minutes, affording breathing time to his attendants; but all of a sudden he rose, went into the sitting-room, and began to write with a trembling hand hastily at the table. He said that he had stupidly forgotten to add a codicil to his will, and was glad to find that it was not too late to supply the omission. Having written a tolerably-coherent statement, to the effect that he had died on such a date, and that he begged his employers to support his son as his successor in business, he quietly returned to his bedroom; but no sooner did he cast his eye on the empty bed, than he broke forth in a most violent tirade against the attendants for having stolen his body. "Where is it? where is it? I left it lying there when I went into the parlor to write the codicil, and when my back was turned some scoundrel has taken it away. Bring it back instantly." And so he lapsed into excitement again. But by and by stupor came on, he lay quiet once more, and, despite of all the help that we could give, the "died at Edinburgh" became a sad reality.

The man does not always die, however; he may recover many a time, drinking on and on; but death in

the paroxysm is not unfrequent; and, besides, this trembling delirium may pass away, only to be followed by steady insanity.

VIII. There is yet another evil — an occasional, nay, by no means unfrequent, evidence of alcoholic poisoning — “*Oinomania*.” For a time, the victim is well; sober, active, trustworthy. But of a sudden, a furious and fiendish impulse draws him helplessly to the bottle. He gulps down the contents rapidly, glass by glass, as if his only object were instant and complete intoxication; and once drunk, he will scarcely permit himself to grow sober again, till probably a week or ten days have elapsed. Then he gradually gets hold of a lucid interval — to be rudely broken up once more, however, at no remote date. The craving is that of a madman, and all but absolutely irresistible. As one has himself said, in terrible words, “If a bottle of brandy stood at one end of the table, and the pit of hell yawned at the other, and I were convinced that I should be pushed in so soon as I took one glass, I could not refrain.”

This state is never of spontaneous origin, like many forms of mental disorder, but is always preceded by intemperance. At the same time, it is most important to remember, that some constitutions are much more susceptible than others, requiring comparatively little previous indulgence in strong drink to produce the evil. For example, I was lately consulted regarding a lady who had become a frightful oinomaniac, and whose malady originated—or had been, as it were, suggested—by the habit of carrying strong spirits occasionally in the mouth for the cure of toothache. “Against her own

better judgment and the voice of conscience, she is forced on," says my correspondent. "For days on end she has been out of one stupor into another. On two succeeding days of this week she has consumed a quart bottle of strong whisky; the next day, or rather night, when people were asleep, she got hold of some key which was supposed to secure from her a bottle of spirits and another of wine, and within twenty-four hours this was also consumed, no one being able to snatch it from her."

Here I might stop and close the evidence, claiming a verdict against the Spirit of Wine as a poisoner. But there are minor counts in the indictment; and to make the case more complete, suffer me to state these very briefly.

The drinker, escaping or surviving the major results, is still liable to serious injury, and of various kinds.

1. Absorbed into the blood, unchanged, alcohol corrupts or poisons that important fluid. It becomes less coagulable—a state favorable to the occurrence of hemorrhages, and unfavorable to the arrest of loss of blood; unfavorable also to healthy nutrition. Besides, it assumes more or less of the venous character; holding far more than it ought of waste material, and so becoming "poisoned"—to use the ordinary language of the schools. The alcohol has done this, as we shall see; taking the oxygen of the lungs to itself, and leaving no sufficient supply for oxidating the "waste." This "waste" so retained, seems to be converted in part into fat—waiting to be burnt; and the blood of drunkards, accordingly, is

found to contain an unusual amount of fatty contents—(this fat not burnt)—apt to take the place of the healthy tissues, as will be immediately stated.

Poison the blood, and you poison the whole man. And do we not find the drunkard soon showing plain signs of this?—ill nourished, flabby, weak, watery in his tissues, sodden and sad in color. Sometimes he grows lean and lank; sometimes he gathers unhealthy fatness—the fat being put down in wrong places, and found where no fat should be. Internal accumulations of this redundancy oppress the vital organs; and the partial conversion of muscular and other tissues into fat, constitutes one of the most serious diseases to which mankind are exposed. With such degeneration of the heart, for example, our life is not worth an hour's purchase. We may at any moment fall down dead. And no single agent does half the work of alcohol in causing such degeneration.

2. Other heart-diseases, as well as aneurisms, and varicose veins, have also their origin, very frequently, in the free and sustained use of alcohol. The blood-vessels cannot with impunity bear a constant, unnatural, and inordinate stimulus, with a consequently hurried circulation.

3. Alcohol's special action on the brain and nervous system we have already seen (page 28). The functional mischief is manifest; and there is good reason to believe that an injurious change takes place in the structure too. When an anatomist wishes to preserve a brain or spinal cord, for the purpose of dissection, he places it in strong spirits; and it grows firm and hard there. Why

may not something of a like change take place during life, when the organ is from time to time saturated with alcoholic blood, as in the case of the drunkard it cannot fail to be? * And is it wise to harden, or to run the risk of hardening, a living brain? Will that benefit a living nerve, or nervous centre, which preserves it *when dead*?

Besides, with disordered blood, disordered circulation, and disordered brain, obviously this latter organ must be peculiarly liable to the occurrence of dangerous disease — such as inflammation, congestion, and hemorrhage. Every one knows how often thus the drunkard is taken away. Sometimes, too, a creeping palsy comes on. And epilepsy is one of the most frequent and formidable complications of habitual intemperance.

4. The stomach is, of course, primarily affected. On its lining membrane the alcohol acts as a stimulant; and may at first do little more, except when in excessive quantity and strength, than excite and exalt its func-

* "Does —— drink freely?" "Oh, yes — and stands it well. He is a *hard-headed fellow*." What a depth of hidden meaning there is in many of the common phrases of life! Hard-headed? Yes; thick outside, and hard within. That the brain is really hardened, seems a fair conclusion from experiments of Liebig on the power of alcohol to displace the natural and healthy water-constituent of all animal tissues. Many tissues and organs of our bodies consist normally of from one-half to three-fourths of water; and when these are immersed in alcohol, more than half the water is displaced, owing to the capillary attraction of the tissues for alcohol and water being less than for water alone. Hence, doubtless, in part at least, the earthy precipitation so common in the blood-vessels of the intemperate — the water in their textures being too scanty to keep certain saline matters in solution.

tion. But such simple action proves very temporary, under habitual repetitions of a liberal dose. Congestion and inflammation take the place of simple excitement. Instead of digestion being favored and quickened, it is retarded and perverted — all the thousand and one evils of dyspepsia setting in ; while, by an acute inflammatory attack, danger to life may be at any time superadded.

After a time, the drunkard comes to have no stomach at all. As a digester, its occupation is gone. Food is rejected, along with foul, loathsome secretions from the diseased lining membrane. The skinned fiery lips and sour water-brash of the drunkard are proverbial. The organ ceases to be a concocter of chyme, and degenerates into a kind of sponge, through which the alcohol filters into the general frame. The man lives no longer on food, but like a snipe on suction.

5. Next to the stomach, the liver suffers. The alcohol, absorbed and passing at once into the veins of that organ, arouses an increased activity in its working. And well it may ; for by its continued presence in the onward blood, it prevents the effectual burning off of the noxious effete matter, or waste (page 17), which then falls to be disposed of in unusual and unnatural quantity by the liver and other excretory organs. And the natural consequence of this accumulated labor is the invasion of disease in various forms. Congestion, inflammation, and functional disorder are common occurrences in the drunkard's flank ; seldom can *he* say that his "withers are unwrung ;" and ere long a chronic structural change will have set in, so peculiar to himself as to be ordinarily

recognised as "the drunkard's liver"—or the "gin liver"—in great measure due probably to the almost constant actual presence of alcohol in the substance of the organ.

The advocates of alcohol, however, demur to all this, and protest that their client cannot in justice be accused of constant and habitual action against any part of the frame, seeing that it is so very rapidly got rid of—partly by burning in the lungs, partly through the organs of excretion. And by way of strengthening their plea, they go on to admit, that were alcohol to be constantly in the blood the result must be fatal, or at least most formidable. Now, we admit that alcohol is "worked off" with great rapidity; far more quickly than almost any thing else ordinarily swallowed by man. And from that circumstance we are simple enough to suppose, that man's frame does not wish for, and by natural instinct resents its presence. There would seem to be other things than a "vacuum" that nature abhors; and alcohol is one of them. She employs all her energies to get rid of the unwelcome intruder, no doubt; and strains her excretory organs in doing so, endangering them with disease through overwork. But still the success is far from instantaneous. Many hours ordinarily elapse ere all is clear. For instance, after a tolerably hard drink a man goes to bed, and sleeps heavily, if not soundly, for eight or ten hours. On rising then, his kidneys plainly tell that the alcohol was plentiful within him just before. At breakfast, the morning dram may renew the supply. In the forenoon comes the biscuit, with

glass of sherry, or mouthful of brandy. At dinner there is a fair allowance of alcoholics taken in; and supper over (for he makes a point of supping, for the sake of what is to follow—he, too, abhorring a vacuum), he cannot go to bed without his “night-cap.” Is it not very plain, that thus, in the case of the habitual drinker, who may perhaps never actually reach the crisis that perils the claim to “moderation,” a tolerably constant supply of alcohol is kept circulating in his frame? And was it not a rash admission for the alcoholic advocate to make, that the constant presence of alcohol in the living blood was in the last degree disastrous? None of the intervals between the “drinks” is so prolonged as that of the night sleep, during which the proof of alcohol’s presence—within the frame, if not in the blood itself—is both simple and satisfactory.

6. The kidneys, however, do not receive the alcohol in so pure a form, or in so direct a way, as does the liver. Ere it reaches them, it is modified and mixed up with the general mass of blood. Yet there is alcoholic strength and amount enough to stimulate these organs to increased working; at the same time giving them something to work for, in extruding, like the liver, an excess of redundant and injurious material. The alcohol itself, too, passes off in no inconsiderable quantity; a fact, as has just been stated, of which every one must be aware, who observes the odor of its diuretic results. And the consequence of this habitual excessive strain on the kidneys is, once more, disease—congestion, inflammation, or chronic change.

Alcohol is a common cause of what is termed "Bright's kidney,"—a most formidable disease, of gradual and insidious origin.*

7. The skin, like the liver and kidneys, excretes; that is, besides other duties, assists in carrying off redundant and effete matter from the system. Its millions of pores are busy at that employment day and night. And they find it quite sufficient work to overtake their ordinary task in a satisfactory way. But the intemperate throws a heavy burden upon them. There comes the same double effect as on the liver and kidneys—stimulation to a higher rate of working, and an increased amount of work to do. The whole skin suffers in consequence, by blotches and blains, by erysipelas, and carbuncles, and boils, by chronic discoloration and disease. And those parts suffer most which are most exposed to view; as if the suffering texture, by a kind of retributive justice, were permitted to declare to all onlookers the sign of its injurious treatment:

"Puffing the cheeks, blearing the curious eyes,
Studding the face with vicious heraldry—
What pearls and rubies doth the wine disclose,
Making the purse poor to enrich the nose!"

The skin-disease in question, or at least something like it, may arise from some other and more reputable cause, no doubt; but in all cases the evidence points in one way, and in most cases truly, as every one knows. "The show of their countenance doth witness against them."

* Dr. Christison's cases of Bright's disease show a proportion of from three-fourths to four-fifths occurring in drunkards.

"Does the priest drink?" said one Irishman to another. "No; never a dhrop." "Then how comes it that his face is pebble-dashed with strawberries?"

Alcohol, then, kills in large doses, and half kills in smaller ones. It produces insanity, delirium, fits. It poisons the blood, and wastes the man. The brain suffers most injury, both in structure and function; but there is no vital organ in the body in which there is not induced, sooner or later, more or less, disorder and disease.

I might go on. The list of evils is not exhausted, wherewith alcohol is found in most damnatory conjunction. But I feel confident that the case is already more than proved.

Some theorists, indeed, perversely argue, that though alcohol, in large doses, is doubtless poisonous, yet, because it is not apparently hurtful when taken in small quantity, or "moderation," that therefore it is no poison. The same men may, in the same way, assoilize every article of the animal and vegetable kingdoms that is brought as panel to their bar. Prussic acid in a full dose will kill you like a shot; but doses of two or three drops of the diluted acid, taken three or four times a day, not only do no harm, in certain circumstances, but even effect a great deal of positive good. Therefore prussic acid is no true poison! And so of arsenic. Swallow an ounce, and you die in torture. But in Styria, you will be told that it "actually gives, both to horses and men, increased vigor, increased beauty, and an enviable rejuvenescence, when taken regularly in

minute doses." Ergo, "horrible arsenic" is no true poison! Is not this horrible quibbling? Arguing thus, you virtually contend for the extinction of poisons as a class. According to your way of it, there can be no true poison. And verily there is none, if alcohol be not such.

But, I say again, my case is more than proved; and I confidently claim a verdict of "Guilty."

ALCOHOL AS A MEDICINAL AGENT.

From among the fiercest poisons, as just hinted, come some of our most valued medicines—a startling fact, perhaps, to the uninitiated, but nevertheless most true. A knife of very keen edge, when used by a light and dexterous hand, will make a cleaner and better wound than the blunter instrument which has to be pressed heavily on the part. And so the remedy of greatest power, when skilfully timed and apportioned to the varying progress of the case, is often more valuable in urgent and dangerous circumstances than the "simples" of the timid practitioner. A few small doses of the one may turn the current of disease, and save valuable life; while, under the other, large and sustained dosings may prove comparatively unavailing. Prussic acid, aconite, strychnine, arsenic, opium, belladonna, are at once intense poisons, and admirable medicines in the hands of the skilful. And we venture to say that not a week passes in the experience of any physician in large practice, in which some of these are not administered for the cure of disease, and with the best effect.

Into this category we cannot refuse to introduce alcohol, and alcohol cannot refuse to come.

By some authorities it has been classed among the *Stimulants*; by others, and more accurately, among the *Narcotics*. The latter, says Headland, "are defined to be medicines which pass from the blood to the nerves, or nerve-centres, which act so as first to exalt nervous force, and then to depress it, and have also a special action on the intellectual part of the brain." Narcotics he further divides into three orders: those causing inebriation—those causing sleep—and those causing delirium. Among the inebriants, he places alcohol first. "The medicines of this order," says he, "taking alcohol as the type, approach more nearly to stimulants than any other narcotics. When given in small doses, their narcotic operation may hardly be perceived. They are then exhilarants; slightly quickening the pulse, and enlivening the mental faculties. When given in large doses, this stimulating action on the heart and mental powers occurs first, and is now more intense; but it is soon succeeded by disturbance and impairment of the intellectual functions."

This latter effect—that of depression, intoxication, or narcotism—is seldom required by the practitioner of medicine; unless, indeed, he clumsily adopts it as a means of deadening sensation to pain, or relaxing muscular power during surgical operations. Chloroform, we know, does this much better—the effect being more speedy, more manageable, more transient, and consequently less injurious to the system.

The medicinal dose of alcohol, then, is not large, but

small* and frequently repeated, with the effect of producing and maintaining the first or stimulant effect, so long as this may be required. And from what has already been said, it will be readily understood that the stimulant power of this agent is exerted on the nervous system and on the circulation, but mainly and primarily on the former.

I. When a man becomes faint, for example, from fear, pain, or sudden injury, and it is desirable to rouse him from the state of *shock* in which he is found, what more suitable than ammonia—a pure stimulant? or brandy—a stimulant-narcotic? The dose of the latter *must* be moderate, however; as, when speaking of the poisons, we have seen how a large amount of alcohol rapidly swallowed by the strongest and healthiest of men may *produce shock*, or depression of the nervous power, of the most formidable kind. And it is only by skilful repetitions of this moderate dose—sometimes even minute—that the rousing effect on the nervous system is produced and maintained, until reaction has fairly set in, and the state of shock has passed away.

II. In certain fevers—such as typhus—there is marked and dangerous tendency to nervous depression; under which, if unchecked, the vital functions become faint, and are apt to cease. Practitioners have in consequence learnt, in certain cases, and still more in certain epidemics, to anticipate and oppose this evil, by an

* There are exceptional cases—such as those of flooding, or other great loss of blood—where the exhaustion is so great that very considerable quantities of alcoholics are required in order to arouse the system, and prevent fatal sinking.

early and judicious use of stimulants. What! wine and brandy in fever! Most certainly. Then is the time to see the use and value of alcohol. There is nothing in nature without its use. Scorpions, snakes, fleas, bugs, and such like unpleasant and apparently unprofitable specimens of zoology, may sometimes puzzle the ordinary observer who would define their exact use in society; yet, bewildered though he be, he may rest satisfied of this, that their operations *are* beneficial, *sometimes* and *somehow*. And so of alcohol. Often it is most noxious; and looking at the wide-spread mischief that it is ever working around them, superficial observers may be tempted to think that it is only evil, and evil continually. But in this, as in other things, the saying of the wise man comes true, "To everything there is a season, and a time to every purpose under the heaven." While standing at the bedside of a fever case — urgent, yet doing well under wine — the ship in a terrible sea, yet obeying the helm in its every turn, and steering steadily — I have often wished to have a tippler or a drunkard on one side of me, with a "fanatical teetotaler" on the other, in order that I might have the pleasure of saying, "There, gentlemen, there is a glorious example of the true use of wine." The man is taking a tablespoonful of sherry, every hour, or every two hours — or a somewhat larger allowance of claret, or a smaller proportion of brandy, — the form and dose of the alcohol varying to meet the varying phases of the disease; and at every dose you can almost see — far more truly than you can see grass growing in a warm summer shower, after long drought — health returning to the

otherwise sinking frame:—the cheek less flushed, the skin more cool, the eye more steady and clear, the pulse less frequent and more strong, the tongue more moist and clean, the breathing easier, the sensations all more comfortable. What is the alcohol doing? Not feeding the man in reality, as one might be apt to suppose; but stimulating the nervous system; spurring the nerves and nerve-centres, and keeping them awake, when otherwise they would go to sleep, and leave the vital functions, first to flag, and then to fail utterly—going to sleep too. The nervous power is kept active, and this excites the vital force to work also. “But the vital strength,” you will object, “must be soon used up in this way—exhausted.” There is a risk of that, no doubt; but better to run that risk, than let all perish at once without an effort. And by and by the stomach will be enabled to receive some *food* again, and to digest it too; whereby the vital strength will be sustained and replenished, so as to meet the strain. The steamship in the storm—to take up our illustration once more—has out a limited supply of coal; and a vigilant production of steam, to work the engines, as she labors in the sea, will tend ultimately to exhaustion of the store no doubt; but still the only chance of safety lies in “cracking on,” with the hope that thereby she may be enabled to reach some friendly shelter, to both “coal and water” for the rest of her way.

Is there no other stimulant that will do as well—as suitable, and more safe? Ammonia, for example? Experience says, No. Ammonia is wanted sometimes, besides. But we must have the alcohol, probably,

among other reasons, because of the heat-producing power which it so manifestly exercises by its oxidation, or burning in the lungs, and which, though in health apt to be injurious, as we shall more fully see, may in this extremity be at least expedient.

Of course the beneficial effect will be most marked in those who, when in health, are least in the habit of taking alcohol in their ordinary beverages. In such persons each spoonful tells with a vigorous stroke on the virgin nervous centres; whereas, in the "seasoned" organism much of the alcohol will be wasted in bringing up the nerves to their ordinary "par," and even then the stimulant effect cannot be expected to prove so successful. Slight touches of the whip are sufficient to keep the fresh horse up to his traces; but the scourge must be laid heavily on the jaded hack, and withal there will be infinitely less power in the pull that follows.

While water-drinking can never render people more susceptible of such disease, it is satisfactory to know, and important to remember, that it makes them much more impressed by the needed remedies when the disease has come.

And another point falls to be considered here. The law of *tolerance*. If disease render my system needful of a certain remedy, or class of remedies—however powerful they may be in themselves, or however noxious, even, under other circumstances—that disease will give my system, at the same time, the power of bearing that remedy, or class of remedies, with comparative impunity. I have inflammation of my lungs, and I

take a grain of tartar-emetic, which affords me relief; and I may go on, taking grain after grain, every two hours or so, without feeling myself made sick, but, on the contrary, feeling myself made better. But if I have no inflammation of the lungs, and take that remedy in like dose, I shall be made very sick in the space of half an hour, or less; and if I attempt to persevere, the symptoms will become those of poisoning. Or I have lock-jaw; I am given a large dose of Indian hemp or "bang," and this is repeated frequently, with the effect of certainly palliating, and mayhap curing the cruel malady. But give me the same dose in health, and I shall probably be thrown into a trance, with restless tossings and troublous visions, awaking in terror and exhaustion; and were I to *repeat* the dosings as in tetanus, I should run great risk of perishing by narcotism. And so it is here. The necessity for the remedy engenders a power of bearing it; and it seems at the same time to give a fixed and favorable bias to the working of the remedy. Without shock or fever, or other depressing agency at work on my nervous system, spoonful after spoonful, or glass after glass of the alcoholic stimulant, in constant and frequent succession, perhaps for days, would certainly pass the stimulant action and merge it in the sedative; I should become intoxicated, and consequently exhausted — my nervous system grievously depressed. But in the trough of the fever such dosing goes on without one sign of drunkenness; the brain, on the contrary, growing clearer and clearer in all its functions. Nay, it is even perhaps wrong to speak of wine and brandy, when judiciously

handled, having even a *stimulant* action in such circumstances. They do not *excite* the brain *above* the normal standard ; they merely bring it up to the normal working, counteracting the state of depression in which they found it sunk, and thus approaching the character of a true tonic. In order to do this accurately and thoroughly, however, it is very plain that both a careful and skilful management of the remedy is required. *Like other poisons*, it is not to be rashly and empirically prescribed, or the dosing fixed by routine. The case must be suitable, the disease and the necessity for the remedy must be there ; the dosing must be well adjusted at starting, and its effects must be carefully watched, in order that it may be duly regulated accordingly.

III. There are some affections of the heart in which the organ acts with great feebleness ; the functions of life flag in consequence, the general circulation is insufficient, and danger to life is apt to ensue. Now, alcohol is a stimulant to the heart and blood-vessels, as well as to the nervous system ; and from small occasional doses, as with the ordinary meals, medical experience has shown that in such cases decided benefit may be obtained.

IV. Again, in these as well as in other cases, dropsies are apt to occur ; and it becomes of importance to stimulate the kidneys, with a view of increasing the amount of their secretion ; just as in a water-logged ship, the pumps have to be plied with increased energy. The crew as they labor thus are worked in gangs or relays, else exhaustion would paralyse their efforts.

Diuretics are the pumping crew in dropsies, and they, too, have to be worked in relays. After a time, a remedy, which at first was very powerful and satisfactory, loses its effect, and has to be changed; this in its turn has to give way to a second, and so on. Now, alcohol is a diuretic—take gin as its most ordinary variety in such repute—and oftentimes it is found useful; not in doing the whole work continuously—not ordered to-day and gone on with day after day careless of effects, but taking its place in alternation with other remedies of the class.

V. In the advanced stages of inflammation, more especially when affecting internal organs, and in some unhealthy or weak inflammations from the very beginning of their course, what is called the stimulant system of treatment is necessary. A condition of nervous depression sets in, resembling what obtains in fever, as already noticed; and alcohol, in various doses and forms, not only does good, but is essential—carefully and skilfully regulated, however, as before. In this respect a great change has taken place of late years in medical practice. Doctors have ceased to be the Sangrados they once were, partly from alteration of views as to therapeutics generally, and partly from change in the nature of disease itself. There has been a remarkable change from the old system of bleeding, purging, and starving in inflammatory affections; and, as ordinarily happens in such reactions, examples have not been wanting of an excess of reforming zeal, carrying its possessors into a dangerous extreme. The time is reached, no doubt, when there is less risk of such extremes than

formerly; the pendulum has lost its wide swing, and is oscillating, we are fain to believe, pretty steadily in the "juste milieu." But there are writers even now who advocate the remedial use of alcoholic stimulants, to such an extent as cannot fail to prove highly prejudicial to the minds and morals, as well as to the bodies, of their unhappy patients. Against such flagrant error we will not scruple to uplift our testimony; claiming for alcoholics a prominent and powerful place in the treatment of inflammatory disease, in certain stages, and of certain forms, but denouncing anything like a promiscuous use of them, and declaring any other than their most guarded and anxious employment to be both unscientific and unsafe.

A diseased joint, or some ghastly sore, is pouring out its cupfuls of daily discharge, and hectic is steadily consuming the patient. In such a case, we cannot exclude wine and malt liquors from our means of cure.

A fierce unhealthy inflammation is spreading along a vein, or burrowing beneath the skin in erysipelas, and the man is laboring for his life in irritative fever. In such a case, the medical attendant well knows that the time for alcoholic stimulus, on account of nervous depression, is either already come or not far off; and that were his hands tied up from this remedy, there would be but little hope for his patient.*

* There is a striking illustration of the law of tolerance here. It will be afterwards stated that alcohol, *taken unnecessarily*, has a tendency to *produce* unhealthy inflammations — that is, inflammations of a weak and bad type, running on rapidly into destructive suppurations, and even gangrene. But *when this kind of inflammation has*

Or an operation has been performed, and in the suppurative stage of the wound, whether from previous exhaustion, excessive discharge, or accidental loss of blood, what is called "sinking" threatens. This constitutes a crisis in which all means of stimulating the powers of life, and more especially the nervous function, must be employed with promptitude and boldness. And, in consequence, alcoholics, once more, may be brought into appropriate play.

All this — and more than this — is true. These are but samples of the circumstances connected with inflammations in which alcohol is both a safe and powerful remedial agent. But against a general use of this in almost all inflammations, and in almost every stage of them, we protest with all the vehemence in our power.

Another evil we would denounce. A patient is dying. An incurable disease is making its closing grasp on the vitals, or old age is slowly passing on into extinction — the flickering flame all but out. The case is manifestly hopeless; health cannot be restored, and life cannot be prolonged beyond a few hours at most. Is this a case for alcoholic stimulants? Most certainly not. And yet the practitioner is apt to fall into the routine of practice; and simply because it is a state of "sinking," to administer wine and brandy in the ordinary way. There is no need for either now: there will be no tolerance in the system; they will not stimulate and support; they will inebriate, and, besides clouding that part of life which ought most of all to be serene, will probably frustrate

occurred, the medicinal use of alcohol then becomes both valuable and essential.

the professional intent, and, by producing reactive exhaustion, accelerate the end. "Let me go home sober," was the touching expostulation of one so tried; and she was right.

VI. But to proceed. Suppose that colic has attacked a patient, or cramp in the stomach, or flatulent abdominal distention, common experience suggests "a dram" as the cure. No doubt it may afford relief; and when nothing better can be obtained, by all means let it be had recourse to. But remember that there are other remedies at least equally good, and many far more appropriate. And, furthermore, when a man prescribes this for himself, let him be sure of his *diagnosis*. If the pain be that of cramp, or a colic, or a flatulency, good and well, the "dram" may do no great harm; if it be not, however, but, on the contrary, the sign of an acute inflammation already set in (as it may be), the "dram" will not only fail to relieve, but must inevitably do harm, acting as fuel to fire. And, moreover, let him beware of magnifying some trumpery uneasiness into such a state of things as to warrant alcoholics. A man fond of the latter, on any plea, may, almost unknown to himself, be too easily persuaded that a physical necessity has arisen for their use—a failing this from which even the lower animals would not seem to be altogether exempt. In a home-park a pensioned pony was leisurely spending the evening of his days, under the kind care of his master's widow. One day she was alarmed by seeing the poor beast rolling on the ground, evidently in pain. The groom was summoned; his diagnosis was prompt—colic; and his prescription consisted of a

couple of bottles of mulled ale, which the pony drank readily, and with obvious relief. In a day or two, however, the attack recurred, and the dose had to be repeated. In a few days more there was another relapse, when the same remedy sufficed for cure. But after a time, the rollings and kickings having become matters of daily occurrence, and always in front of the drawing-room windows, suspicion arose as to their truthfulness; and a little watching convicted the poor pony, like many another pensioner, of shamming the disease for the sake of the cure. The ale was accordingly withheld, and the colic did not return.

VII. Exhaustion may affect the frame from sudden causes — such as great bodily effort, or intense mental emotion, or exposure to extreme cold. In these circumstances, it may be necessary to make use of alcohol as a stimulant of the nervous and circulating systems, perhaps with other remedies; all the more, if the patient be under the necessity—real or supposed—of remaining exposed to the depressing cause, for such a time and to such an extent as his unaided powers obviously could not suffice to meet.

VIII. But, besides these *acute* cases of physical and mental exhaustion from overwork or other cause, there are chronic cases, equally important, and far more common. The clerk, the shopman, the sewing girl, the factory worker, the merchant, the minister, the teacher, the student, the statesman — every laborer by hand and head is, in these days of rivalry and competition, prone to overwork. He sets himself to a daily task beyond what his natural powers can overtake without help; and

when they either fail to do the task, or accomplish it only at the price of thorough exhaustion, he bethinks himself of a remedy. Obviously, were he to take time to deliberate, he would find two alternatives awaiting his decision: either to diminish the amount of work, or to retain that, and seek to increase the working power by artificial means. In general, however, he sees but the latter; in his haste he adopts it; and as day by day he works on, attaining his object, if not with ease, at least without absolute prostration as before, he looks to the wine or brandy bottle as the best of auxiliaries and the truest of all friends. He commits a sad blunder, however—often a fatal one. Such nervous stimulation will seem to answer well enough on an occasion. When no actual increase of vital strength is to be had—by food and rest—a spur to insure the using up of the last residuum may suffice for once, in a way; but necessarily all the more time will be afterwards required to recover thoroughly from the consequent exhaustion. And when such shift or substitution is not occasional but constant,—and when, moreover, there is no sufficient correspondence in the amount of compensating rest—the working organism must soon come to be altogether in a most artificial and unsafe condition. It will resemble an overtasked mercantile house, supported on bills and other means of “accommodation;” the work is done at a great cost; and at any time, by failure of the artificial support on the one hand (even for a day), or by a sudden increase of outward pressure on the other, the whole concern may fall to pieces; either stopping altogether, or dragging out a crushed existence in insolvency

If the man will work on under his burden, it is vital strength that he must have increased, to meet and sustain the increased labor. Let him get that, if he can, by the suitable means; and certainly alcohol is not one of them. But if he cannot, then let him, like a wise man, accept the only remaining safe alternative — diminution in the amount of labor. Alcohol gives no addition to the amount of vital strength; it merely urges the more rapid and thorough using up of what you already have. That may do well enough, as has been said, for an occasional paroxysm of work; but its continuance would only consume all the sooner the scanty existing store. Excessive work, sustained on natural power, will exhaust and lead to a fall; but the fall is not formidable — it is not from a great height — the system is still elastic, and will recover itself after a while. But excessive work on alcoholic stimulus, while it may postpone the fall, renders that far more serious when it comes — from a greater height, with greater impetus, and more likely to produce a fatal injury.

IX. We have seen that the alcoholic stimulants are of service when the system labors under nervous depression, in consequence of active disease — such as fever, or unhealthy inflammations. They may also prove beneficial in cases of chronic general debility, early supervening on the frame, and settling down on it with a firm hold for life — or sometimes seeming to be born into the world as part and parcel of the patient. In these cases it may be found difficult to get a sufficient quantity of food taken and digested, so as to nourish the body suitably, and enable it to meet even a small amount of work

without an artificial stimulation both of the coats of the stomach and of the nervous system: and therefore, along with other suitable remedies, the use of small quantities of wine, or other alcoholic stimulant, from time to time, may under such circumstances be not only legitimate but expedient.

X. There is another class of cases, somewhat resembling the preceding, but with this important difference: the condition is not congenital, but acquired, and of comparatively recent origin—the result of other disease, or of excessive labor either of body or mind. Here the alcoholic stimulus is appropriate only for a brief period, so as to keep the patient temporarily afloat, and enable him to overtake some special object in view. The right treatment is to abandon labor, and take rest, with other suitable means for renewing the vital strength, as has already been stated.

It may be well to correct here an important error, yet very current, in regard to the medicinal use of alcohol. People regard it as a simple and common tonic; and are ready to accept its supposed help as such, in every form of weakness and general disorder of health. But it is ordinarily no true tonic. In its primary effect it is merely a stimulant, as has been stated, with narcotic reaction when in large doses. And in its secondary action it is the reverse of tonic. For while iron, for example, enters the blood and acts beneficially thereon, alcohol entering the blood acts injuriously—so injuriously, that even its advocates admit, as we have seen, that were it constantly present the result would be fatal. Alcohol, as a medicine, is very valuable; but not as a

true tonic. As formerly stated (page 49), it only approaches that character in cases of morbid and extreme nervous depression. Then, and then only, can it be *pushed* with safety. *Then* its continued presence in the blood is not only not injurious, but positively beneficial, by virtue of the law of tolerance. This is a striking example, indeed, of the truth, that many dosings and drugs which tend to kill in health, tend to cure and keep alive in that special form of disease which we know by experience demands their use. Keep alcohol constantly in the blood, during health, and "the result may be fatal." Keep alcohol constantly in the blood, for a time, during typhus fever, or shock, and it will show once more a just claim to its old designation—"Aqua vitæ." Let it not be used, then, as an ordinary tonic; and, at the same time, let not the mistakes of those who do so misapply it detract from its reputation in those circumstances to which its use is really applicable.

I might greatly prolong the consideration of this subject; but enough has surely been said to show what an important place alcohol holds in the *materia medica*. It is, in truth, a medicinal agent of great power and value; never to be lightly prescribed, and always to be carefully watched and regulated in its administration.

Sundry simple rules apply to its use:—1. Make sure that the case is suitable. There is no more fatal error than error in diagnosis: it is "taking in a wrong figure at the very start of the calculation;" no wonder if the final summation should be ruinously false.—2. Remember the law of tolerance, and its converse. If diagnosis is right, the agent will do good and no harm; if, on the

contrary, the diagnosis is wrong, the agent will do harm and no good. In other words, if there be no medical necessity for alcoholic drinks, their use even in small quantity must fail to benefit, and must injure more or less. On the one hand, if there be a necessity for alcoholics, don't be afraid to give them; for the system will bear them well so long as that necessity exists; on the other hand, if there be no such necessity, be afraid to give them, even in small quantity, for the system cannot then receive them with impunity. Such is the double play of the law of tolerance. No doubt, you find men apparently in good health who take daily so many glasses of wine, or their equivalent in spirits or malt liquors, and who nevertheless seem none the worse. But to this the answer is twofold: First, the absence of evil in effect may be only a "seeming." There may be a gradual and insidious evil at work, though unobserved — much as the malaria does not at the first seem hurtful, yet is gradually accumulating its power within till it burst out in the formidable fever.* Second, the goodness of health may be but a "seeming." May not the unnecessary use of alcoholics have *engendered* a diseased state of the system, which requires a continuance of the alcoholics to counteract it? Much as in the case of the smoker of tobacco or opium: — in perfect health, the drug would sicken or stupify him; but being

* The famous Alexis St. Martin's stomach, it will be remembered, had a window; and, looking through that, one could often note inflaming patches on the mucous coat, the result of alcoholic indulgence, though Alexis felt no headache, thirst, fever, or other inconvenience.

in a diseased state—in consequence of the drug's previous consumption when not required—the smoking seems rather beneficial than otherwise. In other words, and in plainer language, the man apparently in health who takes alcoholics habitually with seeming impunity—nay, with a feeling of benefit, as well as of relish—is probably in the same state, though of a minor degree, as the confirmed tippler or drunkard, who has depressed and shaken his nervous system by excessive indulgence in alcoholics, and who needs must have his alcoholics again to raise his nervous system out of such depression—temporary and deceitful though such raising be. The difference between the two men is in degree only, not in kind. In both there is a depression produced and a stimulus given, and the agent of depression and of stimulation is one and the same.—3. Remember in suitable cases the medicinal mode of administration. The alcohol is not given in such dose as to produce its second or sedative effect—that is truly *poisonous*. Its first or stimulant action is wanted; and, to secure that, the doses must be small; their repetition being in every case regulated by the effect.—4. Supposing the diagnosis and administration right, remember there is a time to cease from its use. This is most important, yet too often overlooked. Suppose a medical man to order blue-pill once or twice a day, and, overlooking its effects, to forget to stop it at the proper time. Perhaps the first intimation of his error would be the discovery of intense salivation, with loose teeth, swollen gums, and ulcerated tongue, in his unfortunate patient—his constitution mayhap hurt irretrievably. Or he orders lead, and

forgets that he has done so, till the man is struck with a colic or a palsy. Such mistakes are very rarely made—just because their detection were easy. But a precisely similar mistake is far from rare. Alcoholics are ordered, rightly or wrongly; the effects are not watched; their use is not stopped at the proper time; and the first intimation of the blunder may be the painful discovery that the man has become a drunkard. I would not be uncharitable to my professional brethren; but I would entreat them to consider this matter well—satisfied as I am that many a case of hopeless intemperance, especially among the better classes, owes its origin to ill-regulated medical administration.

Or the evil may fall short of this; and, in illustration, take another case. Suppose a medical man to order opium, to relieve pain or procure sleep, in needful and urgent circumstances; and that he neglects either to regulate its dose, or to order its discontinuance when the necessity for its use has ceased. The convalescent, improperly left to himself, finds, first, that he must increase the dose to attain the ordinary effect; and, secondly, that after a time he can ill do without it. Ere ever he is aware, he becomes an opium-eater—the victim of an infirmity most difficult of cure. And so with the alcohol. Left without due control, the dose is increased, and the habit becomes confirmed; the system refuses to part willingly with its use; and the man, besides being brought into a morbid state of bodily frame, is in extreme moral danger of intemperance.

ALCOHOL AS FOOD.

Here is the fundamental and fatal error: men esteeming that to be food, and using it as such, which is really not food, but physic.

Food, properly so called, is that which enters the stomach, and is thence absorbed into the general circulation, with the double object of nourishing the body and maintaining its due temperature. Such food meets with a solvent in the natural secretions of the stomach, and of other organs connected with the chyle-making apparatus — such as the salivary glands, the liver, the pancreas; and, besides, a solvent is needful also from without — holding the food in solution at the time of being taken, or swallowed along with it, or after it, in sips or draughts. Now, can alcohol be duly entered here as food, or solvent for food? Not as the latter, certainly. It refuses to act along with the gastric juice. "It is a remarkable fact," says Dr. Dundas Thomson, "that alcohol, when added to the digestive fluid, produces a white precipitate, so that the fluid is no longer capable of digesting animal or vegetable matter." "The use of alcoholic stimulants," say Todd and Bowman, "retards digestion by coagulating the *pepsin* (an essential element of the gastric juice), and thereby interfering with its action. Were it not that wine and spirits are rapidly absorbed, the introduction of these into the stomach in any quantity would be a complete bar to the digestion of the food, as the pepsin would be precipitated from solution as quickly as it was formed by the stomach."

In the laboratory of the pharmacist, alcohol is very valuable as a solvent; it holds many things in admirable solution, and many a good tincture it makes. But in the living stomach of man—which *ought* to be no drug-shop—alcohol tends to harden and coagulate, rather than to soften and dissolve. “It is through the medium of the *water* contained in the animal body,” says Carpenter, “that all its vital functions are carried on. No other liquid than water can act as a solvent for the various articles of food which are taken into the stomach.” Water dissolves them there; water carries them into the blood, and through the frame; and water helps to work them off again when useless. Indeed, water seems to have a very remarkable power in depuration of the system from the noxious presence of effete material—more especially when taken beyond the limits of what mere slaking of thirst requires. And on this *water-power*, no doubt, much of the success of “the water-cure” depends.

But if alcohol be no solvent of food, is it food itself? Let us see. Can it nourish or repair the waste of tissue? Not at all. It contains no sufficient chemical constitution for that end; and besides, as we have seen, it is conveyed *unchanged* into the blood, and so circulates there until either disposed of by combustion in the lungs, or removed (more or less modified then) by the organs of excretion.

Does it help to maintain due temperature? It is only too ready to do so. It is very forward to be burnt in the lungs. But is its action there desirable? The mixed ordinary food of man (as beef, bread, and vege-

tables) which nourishes his body—doing specially and well what alcohol cannot do at all—contains not only the peculiar materials for nutrition, but more or less of *fat* or *oil*, and *sugar*, or matter convertible into sugar. Now these (especially the oil) are very suitable for oxidation by the lungs,—hence often termed “respiratory food;” and their peculiar function seems to be the undergoing of that process, with a view to maintain temperature, in so far as such maintenance may be necessary, in addition to what is done by oxidation of the waste material returning in the venous blood, as formerly stated (page 17). In other words, the natural arrangement as to maintaining temperature seems to be as follows:—Probably every act of nutrition and every act of disintegration of tissue—the passing of fluids into a solid, and of solids into a fluid condition—is attended with more or less production of heat (page 20); a special supply of spare oxygen being provided for that purpose. Besides, the disintegrated and waste material* in the venous blood is burned off, combining directly with oxygen taken into the lungs. And any further combustion which may be necessary for completing the efficiency of the warming apparatus, is effected by means of the oil and sugar, more especially the former, with ordinary food supplies. Now, it is ascertained that in ordinary food, received in even moderate quantity, there is not only enough of these

* It is supposed, as formerly stated (page 34), that the waste material is, in its venous transit to the lungs, converted into a fatty substance, probably by the action of the liver, for the purpose of readily undergoing this combustion.

combustible materials to insure sufficient temperature, but more than enough—the superfluity being stored up, as it were, in the ordinary fatty tissue throughout the body, to meet accidental scantiness of supply, through long fasts or famine.

Suppose, now, that alcohol is taken in any considerable quantity, along with the ordinary supply of food. It gets speedily into the blood, and into the lungs. There it has a greater appetite for oxygen than any of the other combustible materials we have mentioned, and accordingly is burned off first. The temperature may be maintained in this way, no doubt. But what happens in consequence of the temperature being thus maintained? Two things; or one of two things, at the least:—The oil and sugar are not burnt off sufficiently, and these materials accumulate unduly in the body; or the waste material of the blood is not burnt off sufficiently, and this accumulates unduly in the body—poisoning the blood, and producing the serious consequences formerly spoken of; or both of these results may occur—as we believe most frequently is the case. And a third evil is also possible: The “spare oxygen,” as we have termed it—intended to circulate with the blood to the remotest parts of the system, and to act an important part during both the waste of tissue and its repair, so generating heat—may also be seriously encroached upon; so great and greedy is the appetite of alcohol for this substance.

The obvious deduction is surely this: that when man receives a fair average supply of food, he obtains at least enough of combustible material thereby; and that when

alcohol is taken in addition, it is unnecessary; the act is a work of pure supererogation — so far as warmth-giving intra-combustion is concerned. And further, the alcohol so taken is not only unnecessary, it is also hurtful, by preventing certain changes in the constituents of the blood, the occurrence of which is essential to health. Alcohol, in short, is in such circumstances not only unnecessary but injurious. It is not food; but a chemical or medicinal agent, which, when ordinary food is absent or greatly defective, or when the emergency is such that there is no time to wait for the digestion of food, may be employed *as a substitute, so far as the maintenance of temperature is concerned*. Or, once more to turn the phrase, alcohol's place is not among the articles of food proper, and *it ought neither to be classed among these, nor used along with them*. Its only pretension to be regarded as food is founded on its combustibility in the lungs, so generating warmth; and every man who has enough, or nearly enough, of ordinary food, has no need of any such thing; it can do no good *in this way*, and must do harm in other ways.

To him only is it allowable — as a combustible—who is suffering both cold and fasting—who, during extreme cold, has either no proper food to eat, or no time to wait for its heat-giving operation, subsequent to leisurely digestion. *He* may use it rationally; but, as he does so, let him remember that it has other properties besides those of a combustible, and that it is safe only for the emergency. To continue its use, as a substitute for food, is to court, or rather secure the invasion of those serious evils, which, in a previous chapter, we have

seen attendant on the free and habitual use of this powerful agent.

There has been a good deal of quibbling about the words "force" and "food." The alcoholists, having a shrewd suspicion that they cannot successfully establish their client's claim to rank as food, in the true and common sense of the term, insist greatly on its being at least "force;" and that if this be not actually the same as food, it is at least its equivalent. But what is force? "All experience proves," says Liebig, "that there is in the organism *only one source* of mechanical power; and this is the conversion of living tissue into lifeless amorphous compounds." The crumbling down of living solids into what at the time is little better than mere dead matter, is the source of the power whereby every living act is performed, whether of muscle or nerve. The generation of this pulp out of living solids seems to be the source of the power of the human mechanism, somewhat as the generation of "steam" out of water and coke is the source of the power of a steam-engine. "Now," say they, "if a man takes alcohol, this 'force' is generated more copiously, and the machinery works with greater velocity and power." Yes. But how? and for how long? How? The alcohol does not act by contributing any living tissue to crumble, or by providing any substitute for it; but by causing merely a more rapid and continued crumbling of what is already there; compelling you to burn your coke and water faster than you were doing, and probably faster than you ought to do—so making more steam; but giving you no addi-

tion to your coke and water, or providing any substitute to make steam of. So much for the "how?" And as for the "how long?" It is plain that if the settlement of this be left to the alcohol alone, the mechanism will soon be silent. The continuance of work for any considerable time, under such circumstances, will depend upon the activity with which food is supplied—nourishing food—so as to atone, if possible, for the increased consumption of the organism. The man working under alcoholic stimulus, therefore, ought to take more food, and digest it thoroughly too, than when working without such stimulus. Yet what is the fact? He takes less. And the inevitable consequence must be exhaustion—premature and in excess. Alcohol is not "force" itself, but only the excitant of "force;" and its invariable effect is, while producing an increased expenditure of "force" for a time, to bring the supply of that force to an untimely close. On a railway, it may be quite possible so to hurry power and speed as to make a show of increased traffic; but if the upshot be to consume "the rolling stock" at a double rate, without doing anything to maintain "the plant," this will be found an expensive mode of managing the line—and withal not very safe.

Our opponents plume themselves greatly on the fact that the working-man takes less food with the alcohol than without it, and seek to make argumentative capital thereof; inferring this to be a proof that the alcohol taken is a substitute and equivalent for the portion of food which is not taken, and which would otherwise have been consumed. "Thus," they say, "alcohol may be useful to the poor man in an economical sense, and

to the dyspeptic man by saving heavy meals." But this is a mere assumption. And no reasonable man can doubt that the explanation is quite different from their statement of it. Habitual use of alcohol, even in "moderation," diminishes the appetite, as we have seen, by exciting a direct and unfavorable action upon the stomach.* The man, in virtue of this morbid condition, comes to have a less craving for and a less power of digesting food.† Therefore he takes less. And the portion of food which he does not take, and otherwise would have taken, is simply lost to his system by the alcohol. This, moreover, has kept waste old material circulating in the blood; and that is offered to the system for nourishment in a fatty and fusted form. There will be no vigorous appetite for fresh food, till that waste material is used up and got rid of somehow—while, meantime, every successive dose of alcohol prevents the disappearance of this obstructive waste by appropriating the oxygen instead. And the question comes to be—Whether shall we take alcohol, eat less, and be imperfectly nourished; or take no alcohol, eat more, and be nourished well? Whether shall we thrive better on a small quantity of new nutritive material, with a great

* "I cannot eat but little meat,
My stomach is not good;
But sure I think that I can drink
With him who wears a hood."

† "I love no roast, but a nut-brown toste,
And a crab laid on the fire;
A little bread shall do my stead—
Much bread I nought desire."

deal of what is old and mouldy; or on a constant and fresh supply of new material, in sufficient abundance to dispense with the old—which, being then in all respects useless, is extruded from the system? Even one less qualified than a “licensed victualler” should have no difficulty in giving the right answer—“The fresh article, if you please; and plenty of it.”

Adopting the tactics of the alcoholists, we could make out almost as good a case for tartar emetic as for alcohol. A patient at one time had much too good an appetite, to his thinking; he was getting stout and porsy; and by no ordinary means could he keep the demands of his clamorous stomach within reasonable bounds. At last a happy idea struck him. He would have recourse to physic, so as to produce slight sickness—a morbid condition; and, accordingly, a small dose of tartar emetic was taken, a short time before every meal. This succeeded admirably; the appetite lessened; the “too solid flesh” began to melt; and the patient was quite satisfied. Now, this tartar emetic, in one sense, took the place of food; therefore was a substitute for food; therefore was equivalent to food; and therefore was food. “*Quod erat demonstrandum* ;” and also “*Quod est absurdum* .”

That plea will not hold good, then. But they have many shifts; and, once again, they put it in this form. “See how little ordinary food the drunkard subsists on. Try you to live on it without the alcohol, and you will die of starvation in a month.” Now, even were we to admit the fact—which we do not—the inference is obviously fallacious. It is true that you or I, as healthy men, could not live as we ought on such a small allow

ance of food; but, keeping away the "alcoholismus" (page 30), reduce us to the same miserable condition of body as the poor drunkard has—little better than a vital zero—and then the same wretched life—if life it may be called—could be managed by either of us, fully as well without as with the alcohol.

This puts me in mind of still another subterfuge. "All respiratory materials—fit for pulmonary combustion—are really food," say they, "and should be considered as such; and alcohol, all must admit, has peculiar claims in that way; therefore it is food." To that we answer by proposing a simple experiment, in return for their courteous invitation to make trial on our part of the drunkard's pittance. Try you to live on "respiratory materials" absolutely alone, and you will be fortunate if the issue be not—as invariably happens to animals so experimented upon—death within a few weeks, in utmost bodily misery.

Alcohol, then, has no title whatever to be regarded as food, in reference to nutrition, or the repairing of tissue. Its claim to be considered food, *as an ordinary agent* for maintaining temperature by intra-combustion, is founded on no just or sufficient grounds, and is in fact untenable. And its title to rank as vital "force" rests only on a fallacy.

May it aspire to a humbler position, as an accessory to food, or *condiment*—such as salt, pepper, or mustard?

Salt is a natural constituent of ordinary food; and when, from circumstances, its amount is defective, both men and animals are led by a natural instinct and craving to supply the defect from other sources. Be-

sides, it is present in all the fluids, and almost all the solids, of the healthy body. Nothing of this is true as regards alcohol.

Pepper and mustard are pure stimulants; and, mixed with food, may be medicinally carminative. Whether taken in large or small doses, occasional or habitual, — and no doubt they are often used most unnecessarily, — they are not found circulating in the blood, specifically affecting the brain, or exhibiting any such poisonous results on the general system as we have seen to be characteristic of alcohol. Taken to excess in large dose, the stomach relieves itself by vomiting. Taken in small quantities, yet unduly, the stomach loses natural tone, by becoming habitually dependent on the extrinsic stimulus.

In this latter respect there is similarity between alcohol and these ordinary condiments. Being a direct stimulus to the stomach, it may, as such, temporarily aid digestion; and as such it may be used in small quantity to help the stomach in an emergency. But used even thus, it is liable to the same objection as is the constant and indiscriminate use of these others — atony of the stomach, to a greater or less extent, and disorder of health following thereon. If you habitually give an organ assistance, it will come to trust to that assistance — do half its proper work, and get lazy. Nay, it will get weak. Give a limb the help of a splint or crutch, day by day, and for many days, and the muscles will grow small, soft, and flabby. Cramp and case a healthy human trunk in steel stays, and you must inevitably produce debility, probably with distortion.

Besides, remember the all-important fact, that alcohol in its action never can be limited to the stomach alone; but, being invariably absorbed into the blood, must affect the general system.

Herein lies the vast difference between it and the common condiments. And if any place be accorded to it in this category, sensible men will mark it thus: "Alcohol, a condiment, in small occasional doses; ordinarily unsuitable, generally unnecessary, and always unmanageable and unsafe."

"What! is a glass of brandy not essential after salmon?" No, sir. If you have eaten salmon to such an extent as to require brandy, it is a sign that you have eaten *too much salmon*; and if, in consequence, a remedy is necessary, you have selected the wrong one. Dip your hand again into the bag of the *materia medica*, and if an emetic should turn up, you will find it infinitely more appropriate.

To one article, often used as a condiment, I confess that alcohol has to my mind some resemblance — horse-radish. Many a man eats this with his beef, and thinks he is the better for it; certainly he seems to suffer not at all. But ever and anon there flashes out a sad calamity of some hapless eater poisoned, through aconite having been taken in mistake. And so there is many a man who takes his dram with salmon and with cheese, day by day, scarcely seeming to suffer thereby; whilst others, by like practice, commit a mistake, and come to fatal poisoning. But there is this sad difference: in the one case, the poisoning is rare and exceptional; in the

other, the fatal cases are counted by thousands and tens of thousands.

"What!" say the alcoholists, "will you stop us from shaving, because a man now and then cuts his throat?" No. But if it so happen that one out of every four or five men who imitate your example *is led thereby* to cut his throat—some maimed and mutilated for life, some suicides—then surely common humanity should persuade you to throw away the razor in disgust, and identify yourself with the beard movement.

Let us take one other view of the "Food" question, before leaving it.

A tree is known by its fruits. Food is estimated by its results. A man or animal, subsisting on convenient food, will prosper on it, more or less. How fares it with the man that lives on alcohol? There are some—alas! far too many—who, with much truth, may be said almost to do so. Like Falstaff, they have but a morsel of bread to their much sack. Nay, they pride themselves on being "small eaters;" honestly adding, however, that they "take a good deal of drink;" and then perhaps setting up a plea for this latter questionable virtue being in their case somewhat of a necessity. Some such there are, who live thus by choice; others are driven to it, in a sense, by reason of insufficient food—"their poverty, and not their will, consenting" to this sad substitute. The case of the latter is pitiable, and not without excuse; but in all the result is the same.

It is as follows, as has been in part stated already, when considering the signs of general poisoning (p. 35).

Be he beer-drinker, wine-drinker, or drain-drinker, who lives thus snipe-like by suction, the evidence of the feeding power of his diet stands thus. Besides the diseases of the various organs, already spoken of, manifesting themselves by their ordinary signs, the process of general nutrition is obviously out of joint. The skin is discolored and diseased, and hangs loose and flabby on the parts beneath. These are soft and doughy; and there is an excess of water in the cellular tissue, giving a dropsical appearance. Where there should be muscular firmness and rotundity, there is thinness and misery of limb; where fineness and sharpness of outline, there is heavy and misshapen pulp. The eye is glassy and unspeculative; the tongue is foul, and not so glib as was its wont; the breath is fetid, and noisome eructations with filthiness of spit are ever and anon emerging. The hands are hot and tremulous; the limbs, too, shake, and feebly totter as they go. The clothes hang loose upon the skeleton, as this daily becomes more and more apparent; the cheekbones stare, the cheeks themselves fall in; and the merest child may tell that the whole man, mental and corporeal, is starving. "Come away!" said a late Lord of Session, to a lean, tall, sallow, withered Writer to the Signet, who entered the Parliament House eating a dry split haddock, or *speldron* — "Come away, Mr. —! I am glad to see you looking so like your meat." This was a mere joke on the part of the learned lord. But in the case of the man we speak of, such a phrase would be full of sad truth. He does indeed look like his "meat"—unsubstantial, unstable, unwholesome; his life "even as a vapor vanishing away."

Or if he be young, and mainly live (?) on malt, there may be an apparent nutrition and growth. He may grow fat; but the fat is not that which in an ox a fletcher would call "prime." It is soft, thin, and ill-colored. Ill placed it is too; collecting where no fat should be; putting the outer man all out of drawing, and squeezing some of the internal organs most inconveniently; his voice is changed, his breath is short and wheezing, and his heart is laboring. Rapidly this fat, both out and in, has accumulated, like snow by the wayside; and as rapidly it may thaw and drip away, leaving as a residue the most gaunt and grisly form of humanity.

There are fat and lean kine, then, produced on this pasturage; but they are all "ill-favored." Sometimes there is, as it were, a crossing of the breed, and the two conditions are somewhat mixed up—in every case, however, expressing the unnatural and diseased, and usually betokening a rapid onset of premature old age, as has been well expressed by the great dramatist, "a marvellous observer of men and manners." "Do you set down your name in the scroll of youth that are written down old, with all the characters of age? Have you not a moist eye, a yellow cheek, a white beard, a decreasing leg, an increasing belly? Is not your voice broken, your wind short, your chin double, your wit single, and every part about you bloated with antiquity? and wilt you yet call yourself young? Fie, fie, fie, Sir John."

In many a case there is another fatness—unseen, but all the more dangerous. The alcohol preventing the burning off of the fat taken as food, as well as of that which circulates in the blood, as part of the waste mat-

rial of the frame, causes accumulation of this somewhere as we have seen (page 35), and experience shows that it is prone not only to be put down *on* tissue, but to be put down *in* and *to take the place of* tissue. The heart, for example, is liable not only to be loaded with fat, but to be in part converted into fat; and the whole arterial tissue is exposed to the same degeneracy. The liver, and kidneys, too, are not exempt. And so the man becomes constitutionally undermined, ere ever he be aware; not only rendered incurably diseased, but liable to sudden death from very slight cause. The insurance offices know this well; and either reject the habitual soaker, summarily, or exact such an additional premium as virtually amounts to refusal of the policy.

Moreover, the fatty degeneracy of the structure may be so extensive, and the soaking of the entire frame in unchanged alcohol so thorough, as to render the man dangerously prone to a most lamentable consummation, from a common outward cause — his alcohol proving an “aptitude for combustion” in a way he little dreamt of. Falling asleep near a fire or candle, a spark lights upon him; and having become as it were a compound of an oil or spirit lamp — with a dash of phosphorus to boot (page 19) — he burns with a strange burning: producing little flame or heat, but steadily consuming away, in horrid stench, leaving but a small residue of dark, offensive, unctuous dross to mark the place where he lay.*

* Examples of this fearful ending are by no means very rare. The term of “spontaneous combustion” is a misnomer, only so far as implying that the incineration is of spontaneous origin. Authentic

Sometimes these serious evils are long protracted, even in hard and habitual drinkers, who for a time may actually seem of specially robust health. But all is deceitful. Take the stout, burly, red-faced, brewers' drayman, for example—who is daily consuming his horns of ale or porter, with his modicum of spirits to make them "light"—and let any disease or accident befall him. This will at once shiver the outward crust of health and strength to atoms. The man can neither bear disease, nor the remedies for disease; the surgeon and physician stand all but helpless at the bed of such a patient; and a scratch or common ail, by which a temperate or abstinent man would not be held for a day, may fatally sweep away this other within a few days, or even hours. What would prove but a simple healthy inflammation in the temperate, degenerates in the intemperate into an unhealthy kind, prone to pass into gangrene. Four cases of mortification of the lungs are narrated by Dr. Stokes—and all in drunkards.

Such are some of the doings of alcohol in the way of nourishing. Looking to the results, we may well say, If this be food, it is manifestly of a very perverse kind—most unwholesome. And those who vend it might, not unreasonably, be dealt with by the civic and legal authorities, as nefariously trading in "diseased meat"—fined and interdicted, with confiscation of all the noxious stuff found on the premises.

cases will be found detailed by Dr. Charles Wilson, in his "Pathology of Drunkenness, page 92, *et seq.*

ALCOHOL AS A LUXURY.

In arguing against the habitual use of strong drinks, I have often been met with an objection to this effect: "I do not admit that alcohol has its proper place in the *materia medica*, as you allege—nor yet do I seek to place it among the articles of *food*; but I regard it as a *luxury*, and use it as such."

Let us consider it in this view.

What is a luxury? Sundry meanings are attached to the word in the various lexicons. The following, if not the most appropriate, are certainly the most favorable to the promoters of such a plea: "That which gratifies a nice and fastidious appetite; a dainty; any delicious food or drink; or anything delightful to the senses." The literal meaning of the word, when used in contradistinction to food, will come out by regard to its derivation—*luo*, *luxo*, *luxus*, *luxuria*. Alcohol, then, we will have to consider as separate from food, and taken in addition to it—as a "dainty," or something "delightful to the senses."

Whence is it taken? From what has gone before, we need have no difficulty in answering, From the *materia medica*. It is something transferred from the category of drugs into that of food, because in its effects it is pleasant or "delightful to the senses." "In its effects," we say; for, as regards itself, "the daintiness," and "deliciousness," and "gratifying of appetite," are generally acquired.

Now it so happens that the ingenuity of man has transferred other things in like manner; and these pro-

mise to be of use in helping us to test the rightfulness of transfer in the present instance. The substances to which I allude are tobacco and opium, belonging to the same class of medicines with alcohol—namely, the narcotics.

Tobacco is one of the most powerful of poisons; and is not without its value—like many others of the same class—as an article of medicine too. Give it, even in small dose, to a child, or to one of any age unaccustomed to its use, and its taste will be found unpleasant, while the effects will be nauseous and disgusting. But habit brings a change in these respects. After a time of longer or shorter probation, and after perhaps no little sickness and distress in the course of it, the recipient of the tobacco—whether it be in fume, or powder, or solid mass—comes to find a strange pleasure and fascination in its use. And many a man, and woman too—nay, even many a stripling—would almost as soon want their daily meal, as their accustomed cigar or pipe. They will not call it “food:” it is something “after meat;” and they call it “luxury.” Sometimes, too, they will tell you that when food cannot be got, it forms no indifferent substitute, tending to keep them “warm and comfortable.”

Now, what are the consequences of this acquired habit? Plainly three, at least, may be enumerated:

I. Harm, more or less, is done to the individual. The theory of the law of tolerance, already alluded to, shows that; and the proof may readily be completed by adding the result of experience. In confirmed and excessive smokers, for instance, the tongue soon shows signs

of disorder in the general lining of the alimentary canal; the drain on the saliva—run to waste—causes thirst; and the stomach gives plain token of an impaired digestion. The hand shakes; there is a peculiar expression of the eye; the heart palpitates; and the entire nervous system is evidently impaired in tone. This is bad enough; but worse may follow. Local diseases, of the most serious kind, may attack the mouth; and one or both limbs may become more or less completely paralysed.*

No absolutely healthy man daily consumes tobacco, in any form, or in any considerable quantity. If he seem to bear it with impunity, it is simply because, by previous use of the drug, he has induced a perverted or morbid state of system, to which further continuance of the drug's use brings at least a temporary relief (page 59).

II. The man becomes a slave. For a time he has gone on swimmingly with his "weed." But, by-and-by, he thinks to leave it off, on account of its expense, perhaps, or its inconvenience, or a sense of mischief done. But he finds it easier to acquire than to abandon—to take up than to lay down. There are two at

* There has been much controversy of late as to the effects of tobacco on the human body; and, no doubt, extreme statements have been made on both sides. In the present brief sketch, I state only what I have repeatedly seen, and am sure of.

Dr. Marshall Hall—a very high authority on such a subject—has recorded his experience and opinion as follows: "It is plain that tobacco acts on the cerebrum, the medulla oblongata, and the heart: its effects are stupidity, defective breathing, defective action of the heart—forms of debility and impaired energy."

the bargain-making in either case; but at the beginning and the end their respective positions are reversed. "What has become of your old servant Robert? You have not surely parted with him?" said a friend to an aged gentleman, at the door of one of the metropolitan clubs. "Yes, indeed I have." "Why? Has he not been with you for fifteen years?" "Yes. But it was full time we should part; and I will tell you why. In the first five years, he was an admirable servant; for the next five, he was a very pleasant companion; but during the last five, he has been a most insufferable tyrant." So is it with the tobacco. At first it is taken up or put down at will, without grudge or grumble; no menial could be more submissive. Next, it comes to be quite on a par with you; and you cannot well stir without taking it at least into consultation. But, afterwards, you are altogether its slave. Provided you do not quarrel with its exactions, and are content to hug your chains, all may go smoothly enough; the weight of the burden is very imperceptibly felt. But if a contention should arise, and you seek to emancipate yourself at a stroke, then the true extent of the mischief flashes upon you, to your sore confusion—one of two alternatives awaiting your decision: either to fall back into helpless bondage; or to begin a fight for freedom, of greatest pain, and even of doubtful issue.

III. The evil, through your influence and example, is extended to others. Not only is harm done to yourself, but, by giving a character and commonness to the practice, you are the means of entrapping the unwary, and thereby extending the evil. You see little ragged

urchins on the street clubbing their few pence to purchase tobacco and a pipe; then they congregate in some convenient stair, and, striking a light, take whiff and whiff about, till either sick or satisfied. They don't like the smell of the weed, far less its taste; and how comes it that they give themselves this trouble? Simply because they see their fathers and big brothers do the same, and they think it manly. Or see that breeched boy, with hat and cane, fresh from his mother's apron-string—lounging on the portico, or strolling on the lawn, or swaggering even on the street, striving hard to seem at ease behind that enormous cigar—almost as big as himself—which seems rather to be smoking him than he it. Do you think that he would ever have ventured on such a bold experiment, unless he had seen men, gentlemen, sensible-looking gentlemen, such as you, similarly employed?

You say: "All very true; but it is a luxury; and I like it." In reply, let me simply ask, Is it either wise or right to indulge in a luxury—something not essential—that is hurtful, enslaving, and infectious?

Opium is an intense poison, when given either unnecessarily, or in inordinate dose; yet when duly administered, as necessity requires, it is one of the most precious of drugs. The medical man would be shorn of half his strength were he debarred from opium—in small doses to stimulate, in large to calm and soothe. "Thank God for opium!" fervently ejaculated one of our most experienced and skilful physicians.

But men in health take it *as a luxury*. And the same unfortunate sequence occurs as in the case of tobacco:

• first, it is a servant; then an inseparable companion; at last a tyrant. It has a special action on the brain; at first stimulant, afterwards sedative. At the beginning of the dose the cerebral functions are all excited, and usually in a highly pleasurable way; but as the effect accumulates, the mental products become of a morbid or perverted kind; and at length the nervous function, as regards its influence on intellect, special sense, and muscular power, is lulled into apathy and sleep.

“When a Chinese is about to partake of the indulgence,” says Mr. D. Matheson, “he retires to a private apartment, and, reclining on his couch, takes his pipe, made for the purpose, and placing on the bowl of it a little opium, about the size of a pea, he sets it on fire at a small lamp, and then throwing himself back on the couch, inhales the smoke at short intervals in a listless mood, till he has attained the desired stimulus, or delirium, as the case may be. If he is a confirmed victim, he usually falls into a profound but restless sleep till the effects of the indulgence have passed off. In the latter case, the craving soon returns, and with it all the languor and misery and pain till the next period of relief.” All this is done at first by the “little pea.” But “that small quantity soon loses its effect,” says Dr. Little, “and, to produce the same amount of excitement, the dose must be doubled, and that again increased, till I have known the original quantity multiplied one hundred fold.” Some bear up under this, without much outward sign of physical evil, as hard drinkers in this country may do; but in general the confirmed “victim” may not conceal his chain and shackles. His body grows weak

and emaciated, his complexion sallow, his eye sunk and listless, his features haggard; his body stoops, and expresses strongly, in every movement, a premature old age; the mind is weak and fitful; and the moral tone is both lowered and led astray. This is the period of complete abject enslavement; and the man that, starting from his danger, would struggle to be free, must face an amount of effort, as regards both body and mind, that is all but overwhelming. One in a thousand may escape, as brands plucked from the burning.

What sane and sober man will tamper with a drug like this, encountering such a risk for such a boon? Yet it is done by thousands in other climes; and *a like thing is done by thousands more among ourselves*—all under the plea of *luxury*!

Like its brother narcotics, tobacco and opium, alcohol has its seductive progress, when used as a something additional to man's ordinary wants, a "dainty," and "delightful to the senses." Exhilarating at the first, and pleasurable to the intellectual as well as to the animal sense, nevertheless it tends to pervert, and deteriorate, and destroy what man would most wish to cherish and retain. After a time, too, the amount taken must be increased to produce even the first and best effect; and then the subsequent sinister tendency becomes more and more intensified. A state of mind and body is consequently induced which craves not only continuance but still further increase of the stimulant. And after every exhilaration there comes depression; the reaction constant, and often great. Who so melancholy and

moping, in his intervals—who so sad in his sobriety, as the man who depends for mirth and gladness on this deceitful help! Forced hilarity turns out a sorry affair in the long run. “Go and see Grimaldi,” said Abernethy to a hopeless hypochondriac. “Alas,” said the poor patient, “I am the man!”

What brings relief? Again be it noted, in letters of fire—for here is the great danger—the drug itself, and nothing else, *at the time*. The man is bitten, and he knows it is for his life; but he is fascinated, and *must* turn to the biter again. This is the terrible peculiarity of alcohol and opium. Their pleasure is followed by pain; and to relieve that pain, a morbid instinct, all but irresistible, leads them to repeat its cause. Relief is felt—transitory and delusive—followed by reaction and relapse. And so in sad sequence the alternation goes—*with no natural check to its progress*.

The individual is hurt, grievously hurt. When alarmed and eager to escape, he finds himself in chains as a bond slave. And, through his example, society at large is hurt likewise; for his fellows, imitating him—and they may be many—become similarly ensnared.

Now we are far from asserting that this is the invariable result of such luxurious indulgence. We know well that there are many most estimable, upright, and Christian men, who have their alcoholic luxury day by day, and who maintain it in its original place of subjection and control. Their dose is the same now as it was twenty, thirty, or fifty years ago; they seem none the worse, either in body or mind; and no one, perhaps, ever saw aught in them, through such indulgence, which

could breathe a stain on either manhood or Christianity.* But what we assert is, that the *tendency* is as has been stated—damaging and downwards, not only to the man but to the many. And the momentous question arises—Is this a luxury that ought to be indulged in?

Might it not be well to follow the example of one of the wisest, best, and manliest of men—"All things are lawful unto me, but all things are not expedient; all things are lawful for me, but *I will not be brought under the power of any*"?†

Some may take a preliminary and general view; satisfying themselves that all alcoholics are but a luxury at the best, and that which is not needful for any just want, but only a thing "delightful to the senses"—a "dainty," or mayhap a means of "gratifying a nice and fastidious

* Even they, however, are not absolutely scathless. The enslaving result has not been wholly escaped from. In advanced years they will find it difficult to abandon the habit. And even when the mind is ready and willing to make the effort, the body may prove stubborn—the "flesh" may be "weak." The long-continued habit may not be at once given up, without the certainty of corporeal distress, and some risk of even injury thereby.

† There is sometimes an apparent heartlessness in the arguments and illustrations of the alcoholists on this question. "The thing is dangerous in the hands of boys and fools; but for grown and sensible men it is safe. *They* have it in command; and why deny *them* the 'luxury?'" The razor is kept from "Tommy" in his Tommyhood; but when he is grown a man, the "razor is then placed in his hands, with full reliance that he will not cut himself—often." Indeed! He may cut his *chin* every day, and lose blood too. Some day, when he least expects it, he may cut his *throat*. There may be a little wit, but there is less wisdom, and certainly no generosity, in that—"often."

appetite"—is not lawful to them, as seeking to keep the body under and bring it into subjection. With them we quarrel not; but yet are aware that such self-denial is too transcendental for the mass of humanity. And to the latter we would venture to put the matter in another form. Granting the lawfulness of your indulgence in luxuries which are suitable and safe, how stand you to this, which is neither the one nor the other? It is not suitable; for we have shown that there is no exigency fitting for it in the healthy economy. And it is not safe; for we have proved that it must hurt the healthy man more or less; and if at any time he let go the rope with which he holds it in restraint, the most disastrous consequences may ensue. That rope is slippery—that hand is feeble—that risk is great. Yourself may become enslaved and lost; you may be the means of enslaving and losing others. Whereas, by abstaining from the luxury, you sustain no harm; all you lose is a sensual gratification, of at least a doubtful kind; you gain a vantage-ground of great safety for yourself, against both physical and moral disaster; and, by your influence and example, you may be the means of conferring like benefit on many around you.

The man that uses alcohol as an article of food, honestly believing it to be such, has some excuse. But as for him who uses it as a luxury, avowedly, with the knowledge that he must have of the risk thereby to himself and others, I do not say that he is without excuse; but this I say, that his excuse is one which it would cost both him and me some trouble to find

In another way I have heard the objection put. "Beneficent Providence has filled the earth with food convenient for man's natural wants; and has clothed it too with *flowers*, to regale and delight his senses. May I not look on wine in this light, and use it as I would a flower—at least occasionally?"

The earth is fair with flowers—their fragrance is sweet, and their hues are beautiful. But even they are often the better of man's hand to restrain and guide; and weeding may be done wisely, too, especially with regard to domestic interests.

There is a place for everything. Shut up the most fragrant flowers in a bed-room, and let the sleeper tell what he thinks of their perfume next morning. Literally he is sick of it; and well he may, for, through it, he is sick to all things else beside. There is belladonna—a graceful plant, with its dark, luscious berries, most fair to look upon. But will you place it by the nursery window, or along the daily walk of your prattling children, who may be tempted to put forth their tiny hands, and pluck the deadly poison? Nay. You will leave it where placed by nature—in the neighborhood of ruins, in waste places and solitudes. And there is aconite—beautiful in its spike of deep-blue helmeted flowers? Will you think it safe to put it into your garden, maybe near a bed of the esculent horse-radish, for whose root it has so often been fatally mistaken? Better be content with some other ornament, and leave the monkshood to its indigenous mountain sides and wooded hills.

Flowers are luxuries, of the gentlest as well as of the gayest sort. Many—nay, most—are in all respects

harmless, when in their proper place. Keep them there. And let those that you have nearest you, and in daily companionship, be both simple and safe—not poisonous, or even in any way hurtful, to yourselves or others.

And so with alcohol. If you will have a luxury, take not that. Be content with some other, less formidable to you and yours.

Again; what is fairer than the poppy, spread broadcast in the field? As nature plants and rears it, it is a fit luxury to the eye. But let man, in his cunning device, torture the plant till it yield its juice; and *that* luxury—not for the eye, but for a grosser sense—becomes a deadly poison. So with the grape. What fairer than the vine—its climbing stem, its shady leaves, its gorgeous clusters? “The fig-tree putteth forth her green figs, and the vines with the tender grape give a good smell.” The ripened fruit is a “dainty,” both sweet and savory; and the simple wine of the olden time, though not wholly without its alcoholic and intoxicating ingredient, was not unfitted to gladden the heart of man, on occasions of festive mirth. But as man’s “invention” extorted opium from the poppy, so it brought “spirit” from the grape. Out of the simple luxuries that God gave him, wilful man has manufactured poisons. Samson’s riddle is reversed—out of *meat* comes forth the *eater*; out of *sweetness* comes forth the *strong*.

The occasional use of both alcohol and opium we readily admit to be most beneficial, under the exaction of disease, and the management of a physician; but to employ either as articles of food, or as frequent luxuries,

is to pervert the nature of things, and wantonly to incur the risk of the greatest evils.

But the grape reminds me of still another variety in the form of objection: "Grapes, figs, apples, oranges, raisins, dates, are luxuries; as such, they are taken after dinner—something separate from and additional to the 'food:' may we not class wine among these? May we not as well sip wine, as chew a raisin or eat a grape?" To this we answer:

I. Such fruits are food—good, wholesome food; and, when taken, should be used as part of the meal, not something additional to it. So there the analogy with alcoholics does not hold. *These are not food, and are taken in addition to it.*

II. The fruity, weak, yet luscious wine of the primitive age was nutritious, and might rank as food; while its small (and not invariable) alcoholic ingredient did not debar it from being used as a safe *occasional* luxury. But it is altogether different with the brandied wines and other strong drinks of the present day—daily, habitually, and freely consumed. They are not food, in any true sense, as we have seen; and their use as luxuries is pernicious.

III. I may eat a few bitter almonds without much harm, after dinner, though each contains an appreciable amount of prussic acid. But should it so happen that, some years hence, bitter almonds were found to contain a much larger quantity of that deadly poison, while, notwithstanding, men had got into the habit of consuming them much more frequently and in larger quantity than before—would I, under these altered circumstances, con-

sider it prudent for myself, or safe for others, to continue the indulgence in such a luxury?

This illustration seems to me to have an important bearing on the example of our Lord, so often quoted and misquoted in favor of the ordinary use of modern wine. The ordinary wine of those days was undeniably weak and fruity — little else than the expressed juice of the grape, largely diluting a small amount of alcohol produced by fermentation in the bottle, when opportunity was given to such change; and, besides, most men did not drink it daily, but only now and then. Such wines as port and sherry were unknown; alcohol, as a *separate* "spirit," had not begun to exist; and drunkenness, as contrasted with many other crimes, was comparatively rare. Christ partook of the primitive wine; He sanctioned, by His presence, at least one vinous feast, and miraculously supplied continuance of the luxury. What He did then, and what He did always, was right — perfectly right, we know. But if we venture reverentially to ask what, in this respect, He would have done, if His time of abode upon this earth had been in these latter days, may we not conclude, that He who knew what was in man, whose heart was ever full of love to man, and who went about continually doing good, would not have countenanced, but rebuked the drinking customs of the people, which, luxurious at the best, and in most cases truly vicious, obviously stand forth as the prolific cause of sin, misery, and disease, so rank and rife in the land?*

* There is nothing derogatory here to the omniscience of the Son of God. It is not doubted that He has foreseen all things from the

In the Scriptures we know that there "are some things hard to be understood, which they that are unlearned and unstable wrest unto their own destruction." Let all beware of being "led away with the *error of the wicked*," "falling from" their "own steadfastness." And if error may not be wholly escaped from, let it at least be approached upon the safer side.

beginning, and that the *principles* of His personal conduct in the world rule all time; but obviously the *details* of that conduct necessarily varied according to the circumstances of the period and place in which He became manifest in the flesh. A steady advance, indeed, has ever taken place in the application of those principles to the practice of virtue—as will be evident to all who intelligently compare the treatment of the perceptive part of the Old Testament with the treatment of the like department in the New.

ALCOHOL: ITS POWER.

FOR the right use of any agent, a knowledge of its power is quite essential, in order that its working may be duly regulated according to the effect which we desire to produce.

Let us consider the power of alcohol somewhat in detail, although this may involve some repetition of former statements.

I. *The power of alcohol as a poison.*—This is great, as we have seen. In a large dose it may prove instantly fatal, as if by shock ; or the victim may linger a while, dying by choking and stupor. With a less dose one may be in great danger, yet recover ; carrying for many a day the traces of his injury. In a less dose still, alcohol produces what is commonly called “intoxication ;” and if this be frequently repeated, mind and body both suffer sad change — the poison acting chiefly on the brain and nervous system. From this cause, life may at any time be imperilled by the invasion of active disease — organic or functional : inflammation of the brain or its membranes, apoplexy, congestion, *delirium tremens*, insanity, epilepsy. Or, by still smaller doses, a cumulative action

may be produced, ultimately developing itself in entire prostration of the nervous system—*alcoholismus chronicus*—a condition very analogous to *founder* in the horse, though proceeding from a different cause.* Or, once more, by somewhat diminishing the frequent dose, these seemingly greater evils may be avoided, while yet the whole frame is being sapped and undermined; not an organ or a tissue left undisturbed in its structure or function.

In other words, alcohol, according to its dose, and the susceptibility of its victim, is either acute or chronic in its working; a sudden poison, or a slow one.

“A madman casteth firebrands, arrows, and death, and saith, ‘Am not I in sport?’” And there is many a man—virtually mad, on at least one point—a monomaniac—who daily saturates himself with this poison, and seeks moreover to scatter and inject it into others—jestingly announcing, in the midst of an uncomfortable conviction that what he says is true, that if it be a poison, as the doctors allege, it is at least a slow one. Slow it may be, yet *sure*.

From this we learn, that if a man design to commit murder, he cannot use a more certain agent than alcohol; and that, if bent on suicide, he will find it equally effectual. But if he wish to be free from blood-guiltiness, in regard to both himself and others, he will refrain from

* In my young days of horsemanship, it was an invariable caution given as we started merrily from the door—“See that you don’t over-ride the beast, and be sure not to give it *too much water when it’s warm*.” The alcohol-founder in man has seldom any connection with either water or overwork.

the use of this agent, in such amount and manner as are invariably—sooner or later—productive of the poisonous result.

II. *The power of alcohol as a medicine.*—This, too, is great; and, in accordance with its strength, requires most skilful management.

It is a narcotic, we have seen, with preliminary stimulant power. And it is this stimulant action which is usually employed in medicine. If we wish to keep a part constantly cold, great care and nicety are required in managing the frigorific application—say a cold cloth—lest, through inattention, it become hot, and so induce the very opposite result to that which is desired. So with alcohol, the stimulant action needs a constant and careful watching, lest, by overdose and overaction, it pass on into the second or sedative stage. Often, no doubt, a small amount of the narcotic effect would seem to be of use in modifying the stimulant, and so giving tone, as it were, as well as action, to the organ or system worked upon. But this requires nice handling.

The brain, and the nervous system in general, we have seen to be the parts chiefly acted on in the physiological working of alcohol. And, accordingly, the remedy, when properly used, is of special service in great nervous depression, by injury or disease; continued for hours, or for days. To oppose, when need is, the shock of injury—as in falls, blows, fractures, wounds, burns,* and to un-

* Let it be remembered, however, that in such emergencies it may be made to do the greatest harm, through its very success as a stimulant. A man gets stunned by a blow or fall, and is lying pale and

teract the sinking tendency in fevers and unhealthy inflammations, alcohol in small repeated doses is admirably efficient.

It stimulates the heart and general circulation, too; and, in some affections of that organ, feeble action may be helpfully supported by a judicious use of alcoholics. Caution, however, is greatly needed when the remedy comes to be repeated on many occasions, or long sustained in any one occasion, lest that peculiar diseased condition of the heart and arterial tissue be induced, which alcohol's continued presence in the blood so frequently occasions (page 35).

It stimulates the kidney, and so may act as a diuretic; and when other remedies are not at hand, or have already failed, it may be used either alone or in combination—unless contra-indicated by peculiarities of the case.

When the powers of life are sinking, from any cause—with cold surface, feeble pulse, and general exhaustion—alcohol is often essential as a stimulant. The life of many a one has been saved by it. But all depends upon the regulation of the dose. Let the effect advance

senseless. A blood-vessel has been torn in his head, and if he lie in this languid state for some hours, nature will plaster up the rent; and there will be no escape of blood, when the patient gradually comes to himself again. But in meddlesome kindness, a stimulant is given prematurely—and, unfortunately, wine, whisky, brandy, are always at hand—the blood is made to circulate in force ere ever the rent is healed, blood escapes, apoplexy is produced, and the man dies, not of the hurt, but of the remedy. Even as a medicine, acohol needs the greatest care. Not only is there a time *for* everything: *time is everything.*

to the narcotic or sedative stage, and death will be hastened in consequence. The small doses, skilfully regulated and repeated, and the effect of each watched by some competent eye and hand, alone can be either serviceable or safe.

In one case, a large dose may be used medicinally. In cramp, especially of a vital part, there may be no other narcotic by; and, to save life, it may be needful to give such an alcoholic dose as shall attain the narcotic or sedative result. If the ordinary medicine-chest be at hand, however, there is more than one anti-spasmodic infinitely to be preferred.

In smaller doses it is a carminative; and it enters into the construction of most of the fluids of that class—the warm tinctures, for example. For colic and flatulency, accordingly, it may answer well—provided there be no inflammatory complication, or error in diagnosis.

In dyspeptics of a certain class, in whom the stomach is deficient in tone and energy, small and cautious doses of the milder alcoholics—such as wine and malt liquors—may be of service. And when such defect is the result of natural formation, all but congenital, the use of such stimulus may require to be even long continued. But in all cases of accidental origin, the medication should be temporary—means being devised and carried out for removing those causes on which the atony depends, and compensating by tonic remedies for the evil already done.

It is to such cases that the apostolic precept applies: “Drink no longer water, but use a little wine for thy

stomach's sake, and thine often infirmities." Strange that men should wrest this into an injunction against water drinking, and in favor of wine drinking, in general! Do they not see that Timothy — this pattern of men, fearing God from his youth up — was by habit a water drinker? that he was to use wine, not as a luxury, not to please his palate, but as a medicine — for his stomach's sake, and his often infirmities? and that, even then and thus, it was only "a little wine" that he was to use? How can we torture this passage into a permission, far less a recommendation, to use wine for the palate's sake, without infirmity of health, and by the pint or quart?

The power of alcohol, as a medicine, is limited to those cases in which a morbid necessity exists for its use. In all other circumstances, it cannot do good, and not only may, but must do more or less harm, when taken in any considerable quantity, or for a long endurance. Even in the suitable cases, the dose — ordinarily small — must be carefully regulated, and the effects watched, lest overaction and injury ensue.

III. *The power of alcohol as food.* — This is easily stated: properly speaking, none at all.

It has no power to repair waste of tissue. And though it has power — very considerable power — to supply fuel for the maintenance of temperature, yet, when ordinary food is taken in anything like sufficient quantity, alcohol as a combustible is both unnecessary and injurious.

It is only when there is no food, or food insufficient in quantity or quality, that alcohol is of use as a substi .

tute for it; and then only as a means for maintaining temperature. It gives no strength, and repairs no waste; and, therefore, even as a partial substitute for food, it is not suitable for continued use, but only for the temporary demands of an emergency.

The power as ordinary food, then, is as nothing; while its power as a substitute for food is limited, both as to extent and time.

IV. *The power of alcohol as a condiment; or auxiliary to the healthy digestion of food.* This, too, will be most truly represented by a negative quantity.

It may be a help to weak or imperfect digestion, we have seen; but it by no means follows that its action will be the same on a stomach that is sound and healthy. On the contrary, all the general principles we have laid down go to prove the opposite.

Every one must at once admit that it has no analogy whatever to our best and most common condiment, salt. And suppose that, like mustard, pepper, or other spice, it were to act as a simple stimulant—what then? The stomach, at present healthy, and consequently sufficient in its working, is excited to an increase of its digestive power; more food is converted into tissue-repairing matter than the system actually requires; the equipoise of health is upset, and the inevitable consequence is disease—manifesting itself more or less plainly in plethora, biliousness, fever, or other disorder. Let us profit by the quaint but pregnant epitaph on the tombstone of the poor man who *would* dabble in physic: “I was well, but would be better, and here I lie.”

Alcohol is not in reality a condiment; and when used as such in health, has a power only for evil. That is very appreciable as regards its primary effect on the stomach; and is still more marked with reference to its general effect, after its invariable and speedy absorption into the system

V. *The power of alcohol as a luxury.*—In one sense, this is undeniably great; else why the vast consumption of it as such?

The first effect is to stimulate the stomach, as we have seen; and by exciting the heart, too, to quicken the general circulation. This gives a glow to the system, and is pleasant to the animal sense.

Absorbed, as it quickly is, it acts on the brain; and the functions of this organ undergo exaltation. The intellect has a quicker and brighter movement; memory is put upon its mettle; and the play of fancy becomes more free. This, like the former feeling, is agreeable to one's-self, and also favorable to social enjoyment; the "pleasures of the table" are enhanced. But such a state is not favorable for intellectual work, inasmuch as, even with a comparatively moderate dose, the *tendency* is very decidedly to the diminution of the power of voluntary control, to the *perversion* of intellectual perception, to the confounding of judgment or reason, to the abasing of all moral principle, and to the arousing of animal passion and desire. The *tendency*, I repeat, *is always in this direction*; and, therefore, it becomes at once apparent that such a luxury must always be indulged with no little risk to the moral and intellectual

health of the indulger; while the considerations in which we have already been engaged, make it abundantly plain that the danger to his physical estate is at least as certain.

And, besides, this excitement is not got for nothing: it is purchased; and part of the price paid is *reaction*. There is first the "ploy," and then the "reckoning." "Mine host," moreover, proves a most exacting and relentless creditor; not one item of his claim in full will he forego; sooner or later the last farthing must be paid up. The stimulant effect, having in due time passed away, is succeeded by a sedative one; and the heart that had just been enjoying alcoholic gladness, finds alcoholic sadness sternly awaiting it, with all the certainty of sequence between cause and effect. For the mercury of the animal pneumometer, when raised by the unnatural heat of spirit of wine, does not, on the removal of this, fall back to the old level from which it rose, but *sinks lower*; and the more sudden and great the rising, the greater and more permanent is the subsidence. So that were the luxurious bent on avoiding the marring of their pleasure, they behoved to take their alcoholic luxury in small quantities, and frequently repeated — every hour or so — as physicians give their alcoholic medicine in treating disease. That would be the only intelligible plan, at least, of endeavoring to grasp the flower without the thorn; and, after all, it would fail — the law of tolerance proving fatal to it. What succeeds in producing and maintaining a certain effect in the case of disease, is by reason of its success *then* all the more certain to fail when applied to the condition of health.

Taken in large quantities, in what is ordinarily called

excess, these evils of alcohol are all aggravated. Reaction is great. The man that in his cups was the bravest and the best of fellows, the happiest and heartiest of good companions, is the most miserable wretch alive next day; and by this state of absolute "horror," is driven to seek a mercurial elevation once more, by a fresh purchase of the same article — on each occasion at a higher and higher price. By a depraved and ruinous instinct, the man looks for the antidote in renewal of the poison. "When shall I awake? I will seek it yet again."

This luxurious attainment of pleasure is not like that which comes by food to the hungry, rest to the weary, or draughts of cold water to the thirsty; a thing to be had always on the same terms day by day, and never palling by repetition. What both gratified and satisfied to-day, may do neither, and certainly will not do both, six months or a year hence. The brain gets hardened, we have seen — actually hardened — by alcoholic saturation; and, in like manner, though not so literally, the constant use of alcoholics, even in moderate quantity, tends to harden the system to their effects; so that the longer they are used, there is a growing necessity for a greater amount in almost each successive dose, in order to obtain the desired result — until the whole system becomes so debilitated and depraved, that but a small quantity suffices to produce inebriation. Such is the *tendency* in all cases; and in the great majority of cases — in all, indeed, when there is not the restraint of high moral principle and habitual self-command — it is realized.

And yet again: If once habituated to this indulgence, even to a moderate extent, daily, it becomes

enslaving. As in the case of tobacco, it grows into a necessary of life—a luxury in one sense no longer—and cannot be laid aside without an effort; such effort implying not only the loss of pleasure and comfort, but the invasion of discomfort and pain of no slight amount and degree.

Thus we see that the power of alcohol as a luxury, though in one sense undeniably great, is not free from most serious qualifications: a power to free, with a power to enslave; a power to gladden, with a power to sadden; a power to raise animal enjoyment, with a power to depress what is best in the mind and spirit; a power to impart a temporary sense of increased health and vigor, with a power of all the while sapping and undermining both. And it falls to be the duty of every sane man to weigh these matters gravely; the boon with the bane, the purchase with the price, the pleasure with the penalty.

Men in health and comfort have no apology for adopting or continuing such a luxury, if, after calm consideration of the subject, they have been brought to an intelligent conviction that the evil overbalances the good. For the miserable in mind and body, we can at least find, if we cannot admit, an excuse. He has a strong temptation, and a bitter experience tells him he can secure a temporary success. "Give strong drink unto him that is ready to perish, and wine unto those that be of heavy hearts. Let him drink and forget his poverty, and remember his misery no more." But here again Scripture is often "wrested" to their "own destruction." They will interpret this literally, at least they

act as if they did so; as if the "forgetting" of poverty, and the "remembering of misery no more," were final and conclusive. They are lulled into a pleasant dream, but the dream is not forever; sooner or later they must awake, and the dread realities of their lives are all the more dreadful when thrown into sudden contrast with the delusive dream. Alcohol, in this respect, is Satan's chloroform.* For his own ends he drugs men with it, or lets them drug themselves, when pained and miserable; for a time they not only forget their dulness, but are borne away into regions of happiness; but, as the influences of the drug cease, the pain and the misery return—too often with a redoubled poignancy. If they would be rid of their evil, they must have done with such deceitful palliatives, and brace themselves to face the only legitimate cure.

Alcohol is alleged to have other powers besides those that can be conveniently arranged under the heads of Poison, Medicine, Food, and Luxury. These we shall now proceed briefly to consider.

* Carrying out the surgical illustration here, let us ask what is the operation performed by this enemy of mankind, while his patient is made for a time senseless to the pain? Not the excision of any morbid and malignant growth; not amputation of a member which, through injury or disease, has ceased to be useful, and become injurious to the system; not the use of the canterbury for the cure of any disease either of body or soul; but excision of the better part of the mental nature, amputation of moral control, and the searing of the conscience with a hot iron—not done all at once, but at many sittings; the foolish patient "etherized" all the while.

VI. *The power of alcohol to sustain a man under bodily labor.*—Many believe that such power exists to a very great degree, and they ground their belief on personal observation. All is based, however, on a fallacy

Labor exhausts vital strength—wasting structure—lowering function. The natural remedy for such exhaustion is food and rest. Waste of tissue is repaired, and the living power of the renovated tissue reaccumulates, ready for a fresh bout of working.

The exhaustion of bodily labor, remember, implies disintegration of substance, as well as diminution of power, especially in two tissues—the muscular and nervous: the muscular is the direct agent of work; the nervous is the inciter and inspector—the “oversman;” and both are more or less exhausted by their respective duties.

Now, how is such exhaustion to be either retarded or recovered from? We again say, by food and rest, properly arranged in regard to time and quantity, as we have elsewhere endeavored to explain.* Let a man have sufficient food, and sufficient rest, at the proper times; and he needs no other corporeal help for the due discharge of his daily toil. He is thus enabled to overtake as much work as his frame is naturally fit to bear. And if, under such circumstances, he break down, or threaten to do so, it is a sign, not that he needs more working-power, but that, being overtasked, a portion of the exacted work should be foregone. And, consequently, the man who stimulates himself, under such cir-

* “Labor Lightened, not Lost.”

circumstances, is guilty of folly; while he who stimulates another, in similar circumstances, is guilty of cruelty and oppression.

Now, can alcohol be brought under the category of "food" here? As such only can it prove a true antidote to exhaustion by labor. No one asserts that it has any power to repair muscular tissue. Has it any power to nourish or repair nervous tissue? This question is open to debate; but our best authorities answer it in the negative.

Well then, if you give alcohol to a man exhausted, or being exhausted, by labor, what effect does it produce? Does it not revive him, giving to his hand a stronger grasp, and to his limbs new vigor? do not the strokes of his hammer gain a fresh force, and does not the task which he had almost abandoned become rapidly consumed? How is this? Not that he has got any nourishment or repair—any real return of strength; but because he has been goaded on to expend the remainder of his then existing strength or working capital, more rapidly and determinedly than he otherwise would or could (or should) have done—the ultimate result, of course, being, that when the task is done, the man is done too. The exhaustion is infinitely greater than it otherwise would have been.

The alcohol does not give substance and strength to either of the decaying tissues; it only *stimulates* one of them—the nervous; and so forces on this to force on the other. The nervous system is to the muscular as the rider to the horse, guiding and controlling its movements. Alcohol provides this rider with a spur

and whip; whereby the poor horse, jaded though he be, may be urged on to do an amount of work which otherwise he would have broken down under. With what benefit to the horse? Exhaustion, fatigue, founder. With what benefit to the rider? There is retribution here: the result is, fatigue and founder too; for the alcohol, acting as a stimulant to the nervous system, exhausts *its* force and disintegrates *its* tissue in compelling it to urge on the muscles to a more rapid exhaustion of their force and disintegration of their tissue. The spur and whip, in their effects, exhaust the horse, but the labor of whipping and spurring exhausts the rider too; and after the effort is over, both the inciter and the incited are in much the same plight. Had it not been better to have ceased from work for a time, giving the beast of burden its food and rest, the dismounted rider likewise seeking his refreshment and repose; so that, after a while, both might have started with new mettle?

If alcohol has any power whatever in giving strength, wind, endurance, *condition*, why do trainers make so little use of it in preparing their men for feats of great exertion? *All* trainers use it, we know, most sparingly; not only in small quantity, but much diluted. And the *best trainers* do not employ it at all; strictly forbidding its use, indeed, because experience has told them of its hurtful tendency, in opposing rather than favoring their object in view.

"Ah but," you reply, "when the hour of trial has come—whether it be in the strain of the boat-race, the stride of the runner, or the struggle of the brutal prize-

fight—is there not then the ‘bottle-holder’? and, judiciously administered, does not alcohol do good service, and show its great power, in sustaining the man in his work?” To this we answer, that the supposed case merely proves our position. The *trainer* did *not* use the alcohol; the *bottle-holder* *did*. Why? Simply because, while it has the power of *stimulating* a man in the hour of exertion to take every drop of “force” out of himself that is in, it has no power of *strengthening*—no power of putting in a store of “force,” or keeping it maintained. The “bottle-holder” cannot strengthen his man to hit a harder blow; he can only *waken him up*, so that his existing strength may be made to go as fast and far as it can.

In connection with this matter, a special reform in nomenclature is much required. “Refreshments sold here,” says the alcohol-vender; and “We must have refreshment,” says the alcohol-drinker. By that expression they do not mean the real refreshments of food and rest, but wine, brandy, beer, and all the alcoholics. In one sense, no doubt, these may make a man “fresh”—according to the slang acceptance of the term; but that is their only claim to the title of “refreshments.” They cannot truly refresh under the fatigue and exhaustion of labor; they only stimulate, and that in rather a left-handed way.

And the alcohol-vender is not content with styling himself a purveyor of “refreshments;” he must assume the name of “*victualler*” too! “Why are the trout not taking to-day?” said a disappointed angler on Tweedside to an old sergeant of dragoons, who plied the gentle art

as a trade, and was great authority in all matters piscatorial. "Ah," said he, "I dinna ken; but there's something far wrang; they'll no come up to their vittels the day ava!" That is the only precedent, that I know of, for alcohol-venders designating themselves "victuallers," and their goods, "victuals." The poor trout, darting after the gay and gaudy fly, finds a sad reaction in the barbed steel that is struck into his flesh. And the tippler experiences a like penalty in the after-workings of his "victuals" and "refreshment."

But alcohol, as we have seen, is not without its advocates—intelligent, interested, and indefatigable. They do not easily abandon its cause. Driven to admit that it has no power to *repair* tissue and *restore* strength, they will yet put in a claim for it as a means of *retarding* the exhaustion of strength, and *diminishing* the disintegration of tissue—on this ground: Observation shows that a working man, under the use of alcohol, *throws off* less waste tissue, by the organs of excretion, than he does without it. Granted. But because less waste material is thrown off, does it necessarily follow that less waste is made. Is it not at least possible, that the same or even greater waste taking place, more is *retained* within the system—in the blood, contaminating that all-important fluid? In other words, may not the effect of alcohol be, not to delay or diminish the waste of tissue, but, while acting in a precisely opposite way, to delay and diminish the getting rid of that waste—the amount of which it has increased?

All research goes to answer that question according to the latter alternative. Alcohol, we have seen, has a very

decided tendency, in the animal system, to get rid of *itself* by oxidation and excretion, usurping the place of matters natural to the blood, which ought to be oxidated and excreted, and which would have been so but for the forwardness of the alcohol. They remain, consequently, circulating in the blood, which becomes less and less arterial in its character, more and more venous, less and less fit for nourishing the frame. Now, here comes in a third injurious effect of the alcohol; and its relation to labor, therefore, will stand as follows:— 1. It does not directly repair and nourish, as azotised food does. 2. So far from retarding, it creates a more rapid consumption or waste of material, than otherwise would have been the case; so increasing the ultimate amount of exhaustion. 3. By preventing oxidation and excretion of the increased waste, it contaminates the blood, and sending down to the muscles and nerves a fluid not sufficient for their due nourishment and repair, still further aggravates the evil. In other words, so far from retarding waste, it hurries it on; so far from favoring, it opposes the power of nourishment and repair. Alcohol does not contribute one solitary brick to maintain the wall of the animal economy; nor does it at all retard the spontaneous crumbling of it. On the contrary, it both enlarges the existing breach, and thwarts the masonry that would fill it up. He is surely an unwise builder, therefore, who uses so distempered a mortar!

Food and air, besides rest, are specially required by the working-man; and alcohol, according to its advocates, helps him to both. But we have seen that such is not the case. It is no true food; and its atmospheric rela-

tions amount practically to an obstructive denial of oxygen. While the supply of that is limited, alcohol takes the lion's share, and leaves the food and waste starving. In consequence, ill-digested food, and unmodified waste, become pent up in the system; and the result is as if the man were breathing a foul atmosphere, or had his head partially affected by an exhausted receiver. Let a man, after a hard day's work, retire to rest under the "night-cap" of a goodly allowance of alcoholics, and it is practically as if he had shut himself into a box-bed, or gone to sleep on the top of a dunghill, or tied a cravat tightly round his neck almost to strangulation. Air gets into his lungs, but it does not do the work it is intended for there; the needful matters are oxidated imperfectly, if at all; and he is not likely, under such circumstances, therefore, to awaken strengthened and refreshed. On the contrary, dry tongue, aching head, heavy eyes, weak back, dull spirits, and leaden brain, all tell him that his lungs have been sadly defrauded, or cheated somehow, when he was sleeping.

If we are to have cordials and restoratives, let us have those which really do something of what alcohol professes to do and does not. You have seen a thoughtless and unskilful horseman, his hands busy with the whip, his seat slack, his legs dangling and jerking like a galvanized frog's, his spurred and bloody heels going fast and furious "like a fiddler's elbow," his reins loose on the horse's neck, its nostrils red and heaving, its eyes bloodshot, its ears drooping, its panting flanks drawn up. The animal is galloping painfully through the deep plough; it will drag weary legs home to-night; and very

probably it may never do a day's work more. The rider is alcohol; or rather, to fall back upon our former illustration, it is the nervous system riding to the orders and wearing the livery of alcohol. But there is another beside him. Firm in the saddle, and with his hands well down, he has a skilful pull upon the *bridle*; keeping the horse well together, he guides his every motion by the pressure of an unarmed limb—the two making common cause, as if a centaur. That horse has as much to carry, and as far and as fast to go, as the other; but he is not distressed; he will find his stable cheerily, and a night's rest and feeding will leave him fresh and uninjured.

Dropping metaphor, coffee and tea are far safer stimulants to the working-man than any form of alcohol. Experience says that with them he can do more work, and better work, for a longer time, than with any form or quantity of alcohol. Practical and personal observation has proved it; and science does not refuse its confirmation. For physiologists tell us that these comforts of life have remarkable power—especially coffee—of toning the vascular and nervous system, and at the same time limiting the waste of tissue,* while they have none of the drawbacks of alcohol. A working-man under alcohol, once more let me remind you, gives off very little waste by his excretory organs—the liver and kidney, for example; but that does not prove that little

* Dr. J. Lehmann remarks "that coffee produces on the organism two chief effects, which it is very difficult to connect together—viz., the raising the activity of the vascular and nervous systems, and protecting remarkably the decomposition of the tissues."

waste is made. On the contrary, there is every reason to believe that an unusual amount of waste occurs, but does not show, because kept noxiously circulating within the system. A double harm is consequently done. An unusual amount of the man's body is decomposed, and what remains is poisoned and enfeebled by the waste being in great part retained. On the other hand, a man using tea or coffee instead of alcohol, will do as much work, and show as little waste; and yet nothing occurs to prevent all that does run to waste from being safely and satisfactorily got rid of. Nothing is unnecessarily expended, and nothing is injuriously retained; whereas, in the case of alcohol, it is the converse that holds true.

Even such restoratives as these—simple and safe though they comparatively be—are not absolutely required, however. Look to facts, and we shall find men undergoing the heaviest possible amount of bodily labor with the use of the essentials only—food and water. Look to troops campaigning. Look to the Guacho of South America, of whom Sir Francis Head remarks—“As his constant food is beef and water, his constitution is so strong that he is able to endure great fatigue; the distances he will ride, and the number of hours he will remain on horseback, would hardly be credited.” And lest it be supposed that these men are cast in some peculiar mould, not fitting for us commoner mortals, listen to Sir Francis's experiment on himself. He did as they did; and, “after I had been riding for three or four months,” says he, “*and had lived upon beef and water, I found myself in a condition which I can only describe by saying that I felt no exertion could kill me.*”

What is meant is, that when restoratives and luxuries are either desired or needed, it will be true wisdom in the working-man to eschew the alcoholics in favor of "that cup which cheers but not inebriates."

Water and milk, no doubt, are the drinks natural to man; and rank, accordingly, as articles of ordinary wholesome diet. Tea and coffee, though not of this class, are not in the same category as alcohol—they are more than mere luxuries, and, though somewhat medicinal, are not poisons. They are not without some fair claim to rank as food, fitted for nutrition as well as respiration. Besides the active principle, theine—a nitrogenous compound—they contain a very considerable proportion of starch and gum, as well as of gluten; this last in such amount as to be equal to one-fourth of the weight of the dry leaves. In ordinary fusion, indeed, this gluten is but sparingly dissolved; but were the powdered dry leaves consumed as beans or peas are, they would prove about equally nutritious. There is also a certain proportion of fat or oil in both tea and coffee; while in cocoa the amount of this is very large.

While thus these things may rank as food—far more truly than alcohol—they are in another sense accessory to food, either as luxuries, or in a medicinal point of view. For besides their power of restraining the consumption of tissue, they excite a peculiar action in the nervous system. This action is neither truly stimulant nor sedative, but rather tonic; soothing when there is over-excitement, rousing when there is depression; and always tending to relieve the nervous centres from congestion of blood. Besides, from this pleasant and bene-

ficial working there is no untoward reaction, unless the tea or coffee be taken in inordinate quantity; then—especially in the case of coffee—unpleasant symptoms do occur, affecting both the circulating and nervous systems.

Tea and coffee, then, may rank both as food and medicine. And the question naturally arises, in reference to their latter character, Whether the copious and constant use of them as food is quite proper and safe? This, as we have seen, is *not essential*, even under the greatest exertion. And without presuming to dogmatise, we would venture to say that when used as ordinary diet, or as luxuries in connection with it, they ought to be taken weak, as well as in moderate quantity—in other words, temperately;* while large and strong doses ought to be reserved for the necessities of the nervous system arising from exhaustion by labor or thought, depression by accident, or disorder by disease.

When judiciously used, they may contribute greatly to our comfort—as much as any form of alcohol can do, and with none of its sinister results on body, mind, or morals. Call them medicines, if you will. They are “domestic medicines,” at once safe and suitable; and, as such, the canister may range on the frugal cupboard far more appropriately than the decanter or the black bottle, the tankard, the greybeard, or the glass.

The great advantage of the water drinker, as compared with the alcoholicist, under work, is this: He has

* Some have alleged that the success of homœopathic practitioners is not unconnected with the sparing use, or absolute interdiction, of coffee and tea, as well as of all alcoholics, in ordinary diet.

the same strength, with greater self-control. He is ready to stop when necessity requires that he should, and runs less risk, consequently, of injury by excessive strain. He does not expend a temporary energy, at the expense of future exhaustion. He does not avail himself of a doubtful and deceitful help, at the cost of deterioration of the blood, and consequent danger to health and life. He does his work at least as copiously and as well as the other, even for a time; and in long continuance of labor, he will do it both more copiously and better. He obtains his desired end in all respects satisfactorily. There is no lassitude, headache, feverishness, foul tongue, or aching limbs next day—even after the hardest labor. All is fresh, and supple, and free. *There is no reaction.**

Has alcohol no real and useful power, then, in relation to bodily labor? Yes; but much more limited than is generally supposed. It may be of use in an emergency—not for continuance. If an honest, willing horse has a daily round of work to do, what fits him for it is not the whip or the spur, but corn and hay, and water, and regular rest. But if at any time a special effort is to be made, and the ordinary means do not seem sufficient to secure it, then whip and spur may be employed—though always with caution. If a mighty load is to be stirred, if a yawning ditch has to be leaped, if the rising tide or burning prairie be pressing behind the rider, he may well use both heel and hand; even should

* "I have backed as many as 60 tons in a day, with perfect ease," says a London coal-whipper, "*since I took the pledge*. But, *before*, I should scarcely have been able to crawl home; *certain to have lost the next day's work*."

he have cause to fear that the effort which saves his own life may be fatal to the faithful steed that carries him. As a man spurs his horse, so may he spur himself, for the accomplishment of some special end. But obviously that end ought to be of sufficient importance to warrant such a means; and the spurring, even when warrantable, must be conducted with prudence and caution. Alcohol is not a suitable means of continuously sustaining man under bodily labor: it is only a spur for a spurt.

VII. *The power of alcohol to sustain a man under mental labor.* All that has been said against its use in bodily labor applies here; and something more. What is true of the muscles is true of the brain — the material organ with the co-operation of which mental work is done. In labor of the hand, alcohol stimulates the brain to stimulate the muscle, and so exhausts both brain and muscle. In labor of the head, alcohol stimulates the brain to an increase of function under mental power, and so effects a concentrated cerebral exhaustion, without being able, as we have seen, to afford compensating nutrition or repair. On the contrary, one effect of alcohol, formerly considered, is to impair the nutritive qualities of the blood; and the brain, consequently, comes to be imperfectly nourished. The increased tear and wear meets with less than the ordinary renovating supply; and this state of things, long continued, may produce an absolute wasting of the brain's substance.

But besides, how does it affect the mind? Such subtle influences, of course, we cannot trace. But we know

full well, as was formerly stated, that the use of alcohol, while in moderate doses exciting, quickening, intensifying mental action, in part, yet always has a tendency to diminish voluntary control,* as well as to depress the moral nature, and clog the faculty of reason. Is that a suitable stimulus for the student? is it a safe stimulus for the man?

There is the same common fallacy here, of course, as in the case of manual labor. The stimulus is felt to do good. "I could not work my work without it." Perhaps. But at what cost are you working your work? Premature and permanent exhaustion of the muscles is bad enough; but premature and permanent exhaustion of brain is infinitely worse. And when you come to a point where work must cease or the stimulus be taken, do not hesitate as to the right alternative. Don't call for your pale ale, your brandy, or your wine. Shut your book, close your eyes, and go to sleep; or change your occupation, so as to give a thorough shift to your brain;† and then, after a time, spent, as the case may be, either in repose or recreation, you will find yourself fit to resume your former task of thought without loss or de-

* It is lawful to learn from the rogue here. Look to the professed gambler. His victims he lures on to wine and brandy, but himself tastes never a drop. While he would have their power of mental control asleep, he keeps his own wide awake, with his "head cool."

† "Rest in thought is procured by abstaining from all *voluntary* effort of thinking, or by *changing* the train and character of thought from grave to gay, from what is severe and exhausting to what is felt to be light and exhilarating—just as muscles are often relieved, not by absolute cessation, but by alteration in their use." — *Physiology in Harmony with the Bible*.

triment. Not so with the alcoholic stimulus; the result of this is untoward in two ways — corporeally, exhausting; intellectually and morally, deteriorating.

While, then, the power of alcohol in sustaining manual labor is limited and temporary, its power in reference to mental labor is worse than nugatory; it is noxious, and not warrantable, even for a time, to a man in health.

Look to the mental workers under alcohol. Take the best of them. Would not their genius have burned not only with a steadier and more enduring flame, but also with a less sickly and noxious vapor to the moral health of all around them, had they been free from the unnatural and unneeded stimulus? Take Burns, for example. Alcohol did not make his genius, or even brighten it. It burnt it off all too soon; and though at times the flame may have been both bright and pure, and the fragrance sweet as violets, full well you know that often the light was lurid, the odor naught.

As for the mere intellectual power, try a simple experiment on yourself. Swallow a draught of porter or ale — a pint or a quart, according to your measure. Then sit you down to the solution of a mathematical problem, or to the following out of a hard logical argument, or to the detection of a fine metaphysical subtlety. How sadly hampered you will feel! A painful, puzzled attempt will terminate, not in satisfaction or success, but in a mortified conviction that you have foolishly lubricated your mental machinery with something else than oil; claggy and confounding.

Or, if you prefer an experiment already made, by one transcendently qualified for the task — take the evidence

of Hugh Miller. "The workman," says he, in his "Schools and Schoolmasters," "had a 'founding pint,' and two whole glasses of the whisky came to my share. A full-grown man would not have deemed a gill of usquebaugh an overdose, but it was considerably too much for me; and when the party broke up, and I got home to my books, I found, as I opened the pages of a favorite author, the letters dancing before my eyes, and that I could no longer master the sense. I have the volume at present before me—a small edition of the 'Essays of Bacon.' . . . The condition into which I had brought myself was, I felt, one of degradation. I had sunk, by my own act, for the time, to a lower level of intelligence than that on which it was my privilege to be placed; and, though the state could have been no very favorable one for forming a resolution, I in that hour determined that I should never again sacrifice my capacity of intellectual enjoyment to a drinking usage; and, with God's help, I was enabled to hold by the determination."

Or, if you still demur, and allege that this is the testimony of a Scotch and stern school, take that racy Englishman and laughing philosopher, Sydney Smith, who writes thus to Lady Holland, in 1828:—"Many thanks for your kind anxiety respecting my health. I not only was never better, but never half so well; indeed, I find I have been very ill all my life without knowing it. Let me state some of the goods arising from abstaining from all fermented liquors. First, sweet sleep; having never known what sweet sleep was, I sleep like a baby or a plough-boy. If I wake, no needless terrors, no

black visions of life, but pleasing hopes and pleasing recollections: Holland House, past and to come! If I dream, it is not of lions and tigers, but of Easter dues and tithes. Secondly, I can take longer walks, and make greater exertions, without fatigue. My understanding is improved, and I comprehend political economy. I see better without wine and spectacles than when I used both. Only one evil ensues from it: I am in such extravagant spirits that I must lose blood, or look out for some one who will bore or depress me. Pray leave off wine:—the stomach is quite at rest; no heart-burn, no pain, no distention."

Or what say you to a transatlantic? the late Rev. Samuel Miller, D. D., of Princeton, New Jersey. For sixteen years he had followed the advice of his physicians, in drinking one or two glasses of sound wine daily. "During all this time," says he, "my health was delicate. More than six years ago, when approaching my sixtieth year, I broke off at once. The experiment had not proceeded more than a month, before I became satisfied that my abstinence was very strikingly beneficial. My appetite was more uniform, my digestion improved, my strength increased, my sleep more comfortable, *and all my mental exercises more clear, pleasant, and successful.*"

The wise brain-worker, when thoroughly fatigued, will rest. When needful of a stimulus and restorative, as oftentimes he may be, ere the ordinary or available time of rest has come, he will prefer tea or coffee to alcoholics. The former, used in moderation, have no remote evil effect, like alcohol. Unlike it, they do not send

blood to the brain, but tend rather to coax blood from it — “clearing the head,” as the common expression bears; they stimulate function, at the same time causing no unusual tear and wear of structure, but rather diminishing what would otherwise occur; the whole mind is raised, and no portion of it depressed or deteriorated. We can appreciate the value of a pinch of snuff, when the practice is not habitual; that is, when the insufflation is followed by sneezing, and blowing of the nose, and when the narcotic effect of the drug is not manifested. But it really puzzles one to know how alcohol can benefit the student. Determining blood to the brain in unusual quantity, and that blood deteriorated in quality so as to be no longer well fitted for healthy stimulus and nutrition, but calculated rather to induce stupor; the brain stimulated in an irregular and untoward way — reason hampered, if not perverted, and the power of voluntary control more or less diminished; the moral sense lowered, while animal passion and desire are roused; the brain’s actual substance, too, undergoing some structural change, not for the better — how can this state of things favor any form of sound mental labor?

Genius may have its poetical and imaginative powers stirred up into fitful paroxysms by alcohol, no doubt; the control of will being gone or going, the mind is left to take ideas as they come, and they may come brilliantly for a time. But, at best, the man is but a revolving light. At one time a flash will dazzle you — at another the darkness is as that of midnight; the alternating gloom being always longer than the period of light, and all the more intense by reason of the other’s brightness

While imagination sparkles, reason is depressed. And, therefore, let the true student, as we have said, eschew the bottle's deceitful aid. He will think all the harder, all the clearer, and all the longer; and in due time, he will prove that the designation of "water-drinker" can carry no imputation of missiness or mediocrity. Reason as well as experience warn him to join Samuel Johnson in his cups — avoiding, however, intemperance even in these — rather than to take part with Byron or Burns in their bottles and bowls.

But I may be told — "You are too sweeping in your remarks. Are there not many able students, deep and accurate thinkers—good and godly men too—who habitually take a moderate alcoholic stimulus, and think themselves all the better for it?" True. But in these cases the dose is small, *and kept uniformly so*—a thing that not every one can do. Besides, the *tendency* in the effects of even a small dose is sinister, as has been stated; and well though they have done with the alcohol, they would have done better without it. The feeling of benefit is only an assumption; let them try an interruption, and they will find that they have been leaning on a fallacy. And, moreover, they are working at a great cost; the alcohol is not removing, but only *masking* their fatigue, at the same time spurring them on to greater and more sustained exertion. A horse, suddenly taken lame, limps, and is led to the stable. But, if he has been "*nerved*," he may dash the diseased foot as he will upon the hard streets—he may do much work, and seem sound too — though there is something peculiar and unnatural in his way of going, and the rider at all times

sits insecurely; and all the while the navicular disease is making double progress, and bringing the poor animal to the tanyard before his legitimate time. The alcohol does to the hard student what "nerving" does to the horse. Let both keep their pain and fatigue—if not unmitigated, at least unmasked; for these are Nature's wise and salutary checks against excess of labor.

Let me state here a case well illustrating the drift of my argument. A friend of mine, a noble workman, of both body and mind, had fallen into weak health; and having been enjoined the use of wine, as a needful medicine, he took his few glasses of sherry daily, although professedly an abstainer. In course of time, the patient became oblivious of one important principle of practice, formerly alluded to (p. 60). He forgot to "take stock," from time to time, and see how his trade was flourishing. The medicine was continued, upon chance, for years. I ventured occasionally to suggest a doubt of the same necessity for stimulus remaining as at first. But I made no impression, until my views happened to receive an important backing by a threatening of *gout*. My friend, then truly disquieted as to his tactics, resolved to change them on a venture. The wine was wholly given up, the gout disappeared, and the man rose like a giant. He found that he could do much more work now than formerly, with much less fatigue; and he needed to be restrained, lest by excess of labor, from the very love of it, he should endanger a relapse. One alcoholic result—the gout—did good service here. But it is not always, or indeed often, that so alcohol works its own check and cure.

It is familiar to every one, that in the present day the life of busy man* is more precarious than of yore. We hear of many sudden as well as early deaths. We stop a little to shake our heads sadly, and then push on into the crowd again, unheeding. The lesson is not learnt. Yet this, I feel very sure, ought to be part of the lesson taken home — that at least two causes are concerned in this infraction of longevity: men are moodily and muddily overworking both hand and head, and they know not that they do so, by reason of a general use of alcoholic stimulants. Deceived by these, the excess of work is both undertaken and overtaken — after a fashion — but at the cost of a terrible increase of the tear and wear.

Alcohol to the working human frame is as a pin to the wick of an oil-lamp. With this you raise the wick from time to time, and each raising may be followed by a burst of brighter flame; but, while you give neither cotton nor oil, the existing supply of both is, through such pin-work, all the more speedily consumed.

From what has been said, it necessarily follows that a man who works both mind and body much must not only fail to benefit, but suffer harm, by the use of alcoholic stimulants. We need not repeat the reasoning. And to those who refuse to be convinced by reason, we would simply say — try experience. Make trial of the change — from the alcoholic to the simple plan of working.

* I mean those who are actively engaged in business, and whose labor is specially of a mental kind: working under the high-pressure system of the time.

Not limiting the time of probation to weeks or days, however, as is generally done. You must give time to the system to escape from the slavery of habit. Months are needful for that; and then you may expect the tests to begin to tell. Great blundering is constantly being committed in this way. A man has been for years—well-nigh a lifetime—habituated to moderate alcoholic stimulus, and he says: “Oh, I’ll make a fair trial without it. It’s all one to me. I’m sure I shall be most happy if the experiment succeeds.” And he stops his wonted allowance for a week, or a fortnight, or a month. At the end of that time he comes and says: “I knew what would happen. Your water system won’t answer with me. I have given it a fair trial, you see; but I have lost flesh, appetite, and strength. I am uncomfortable, too, and can’t get through my work. I must stick to the old way.” He thinks he has given your way an exceedingly “fair trial,” and he looks to be mightily commended at your hands; yet all the while it has had no trial at all. He never entered upon the road; he stuck half-way in the avenue leading to it. He found himself in the modified “horrors” of abandoning an old alcoholic habit; and by an error of reason, rather than of intention, he hurried back instead of pressing on for an escape. Back to what? To a certain slavery, which even in its lightest and best form is both irksome and unsafe.

Or, again, if the sceptic refuse to experiment upon himself, let him take the evidence of those who have done so, and who must be taken as highly competent evidence. Richard Cobden has gone through hard work

of both body and mind, especially as an agitator; and he tells us frankly: "The more work I have had to do, the more I have resorted to the pump and the teapot." Or hear Dr. Carpenter's Highland minister—and who works harder with hand, and head, and heart, than the faithful, zealous, earnest pastor? his labor concentrating on that very day, too, which to other men brings rest. "The last thing which he had relinquished," says Dr. C., "was his tumbler of whisky-toddy on Sunday evenings, which seemed to afford him a great refreshment after the fatigues of two long services, into which he was accustomed to throw his utmost energy. He gave up this at first merely as an experiment, and went to bed on Sunday nights in by no means as comfortable a state as he had been used to do; but he soon found that he rose *so much fresher* on Monday mornings, and was so much fitter for mental and bodily exertion on that day, that he continued his abstinent practice from a conviction of its decided benefit." Or, if you refuse to be convinced by a Highlander and Presbyterian, take the equally strong evidence of a Southron churchman—the Vicar of Plymouth. "You all know that my work on the Sabbath day is very hard, and I used to think that I was entitled to something good after the labors of the day, and generally took a stiff glass of brandy and water. I did this, as I thought, to strengthen me, but I invariably passed a restless night, was always Mondayish, and felt unfit for anything; but since I have given up the brandy and water, I feel as well on Monday morning as I did on Saturday night."

To all clergymen we would respectfully yet earnestly

say—Go and do *likewise*! And we would remind them further, that they are professionally liable to a still more insidious temptation, when they do feel “Mondayish on the Monday.” Unable for wonted work with wonted vigor on that day, they may then specially resort, through a kind of professional instinct, to alcoholic help, and, *with that*, labor on as on other working days. The result is in two points of view injurious:—1. They may be readily drawn thus into a habit of dependence—to an increasing extent—on a support which is both dangerous and deceitful. 2. They break the just and natural order of things. Monday should be to the working clergyman his day of physical repose and recovery—his Sabbath, so far as the body is concerned. It is natural that he should feel listless and disinclined for exertion on that day; and it is right that he should rest accordingly. It is unnatural to oppose that sense of lassitude by temporary and artificial means; it is wrong in him to labor on that day, except at the call of “necessity and mercy;” and it is doubly wrong in his people to ask him to do otherwise. His wisdom as well as his duty is—to be content with the Mondayish feeling on the Monday, and willingly to submit to its exaction of repose—well assured that, after simple and sweet rest during that day and night, Tuesday will come, brighter and better, in its own natural way, to both summon and support him in his resumption of duty. He should *wait* for this day patiently—not seek to *conjure* it some ten or twenty hours too soon.

In one word, alcohol’s real power—whether as to mind or muscle—is well illustrated by one of its common

results — *delirium tremens*: excitement with weakness. Alcohol has power to excite, but not to strengthen; on the contrary, with the excitement, sooner or later, comes debility.

VIII. *The power of alcohol in relation to the endurance of cold.* — The common belief that alcohol has great power in this way is easily understood. Drink a glass of spirits, pure or diluted, and you feel the stomach warmed; the heart and pulse beat quicker and stronger, the whole frame glows, and the warmth is at once speedy, decided, and comfortable; while, at the same time, the nervous centre is quickened to a more vivid perception of the comfort so induced. "Waiter! bring me a glass of brandy; for I am chilly and cold." So reasons and acts the common man; and as he glows and glistens in the fumes of his hot tumbler, he thinks himself a most shrewd practitioner.

His scientific brother can explain the matter more thoroughly. He looks on the human interior as a mere laboratory; and on the functions of its various parts, as on the action of mere chemicals. He knows that alcohol is a grand combustible; and that, when taken internally, its *forte* is the production of heat by ready oxidation in the lungs. What so suitable, then, to raise temperature, when temperature is low? If the man is cold, and wants to be warm, give him alcohol, and plenty of it. Heap fuel on the fire, ply the poker, and blow the bellows!

But the burning of coals in an inanimate grate is one thing; and the burning of alcohol in living lungs is

quite another. Man is not a mere spirit-lamp. Nay, he is not intended to be a spirit-lamp at all, as we have seen—but an *oil-lamp*; and to be used on the principle of a *moderator*. Oil in the food is the special lung-combustible for heating the frame, designed and provided by nature, in addition to the burning of the waste material of the body; and, as formerly stated, it is believed that such waste is converted into an oleaginous form on purpose to undergo such change. These combustibles are intended to be burnt, and ought to be burnt; if not burnt, harm accrues in many ways; if burnt, they are abundantly sufficient for the due maintenance of temperature. Besides, it will be remembered that a supply of oxygen is needed to go forward with the blood, and carry on the heat-causing changes of nutrition and decay of tissue (p. 19).

Now, if alcohol is taken in quantity, it usurps the place of such combustibles. For a time, it may raise the temperature high enough; but important work is left undone, noxious matter is retained, and the whole organism suffers in consequence. Alcohol, in short, acts the part of a forward volunteer: doing the work of the regular staff; throwing these into dangerous idleness; not doing their work better—if so well; and putting the whole arrangements into thorough disorder. Indeed, the work is *not* so well done. Chemistry will quite warrant the strongest assertion of this. For, according to Liebig, the comparative power of these matters as combustibles may be rated thus: Supposing that 100 parts of oil are required to produce a certain result by its combustion, the attainment of the same result by starch

will require 240 parts; by sugar, 249 parts; by alcohol, 266. So that, although alcohol is no doubt a very fair combustible in its way, yet it is decidedly inferior to all those others which nature obviously prefers, and has taken care to provide in ample abundance. That it should occupy a lower grade even than sugar becomes intelligible enough, when the matter is regarded in a strictly chemical point of view; seeing that it is not only a *product of sugar*, but also a *degradation of that substance by putrescence* — altogether a very “inferior article.”

Suppose a daily repast provided by a master for a certain number of his hired servants. There is enough for all, but no extravagant excess. He expects that, refreshed by their feeding, they will rise and do their work; the doing of which, and the doing of it well, is essential to the safety and order of the house and household. But an unbidden guest steps in; and professing great power as well as great willingness for this particular work, helps himself to the food, first and fast, leaving scarcely a mouthful to the hungry domestics. Unsatisfied and unrefreshed, *they* have no power to execute the task that now awaits them. But no matter. *He* is both satisfied and refreshed, and he will do it for them. Accordingly he sets to work, and the thing is done — but only in an imperfect and inferior way; while the servants, by reason of unwilling and unwonted idleness, as well as of imperfect and insufficient nourishment, are permanently deteriorated. Would the master of the household tolerate the presence of that forward, greedy, self-sufficient, incompetent, and unprofitable guest? For

once, perhaps, he might. But surely on his presenting himself the second day, it would be well to show him summarily to the door. "Ah," but you say, "the illustration does not hold good. There may be a limit to the servant's food, but there is no limit to the supply of oxygen from the atmosphere." Nay, but there is. The oxygen *in* the air is indeed inexhaustible; but the amount of it which human beings can receive *from* the air, and convey into the blood, is limited. And out of that limited supply the alcohol, helping itself first — as unwelcome, as unnecessary — leaves no sufficiency for the needing and needful consumers.

Besides, as we have seen, after the paroxysmal activity of alcohol, there invariably comes reaction; and this is a serious matter, even supposing that alcohol did do its work well as a heating agent. The effect does not last. Depression follows the excitement, sooner or later. It is a bad sign of the weather when the barometer is jumping up and down. Steadiness is the great thing in the weather-glass. But there is no steadiness in the mercury of the human frame, when swayed by alcohol: it rises suddenly, and falls just as soon; according to its rising so is its depression; and each successive dip goes lower than its predecessor.

Alcohol, we repeat, is but a poor substitute for food, even as a calorific. Indeed, volunteered substitutes are seldom equal to the regular workman, even for a time, much less when taken into constant employ.

Let us take one more illustration. There is a fireplace, and in it you want to do two things. You wish to consume some rubbish, the consumption of which is

essential to your just economy; and, by its burning, you wish to maintain due heat in the apartment. For this double purpose you put wood and other kindling material below the rubbish, and burn it steadily away. All goes well: the rubbish is consumed, the heat is kept up, the grate does not suffer, and the atmosphere is kept pure and wholesome. But suppose that after you have nicely adjusted matters, some one interferes, and placing some very inflammable substance on the top, sets fire to that. What happens? The top combustible blazes, the rubbish smoulders and smokes; for a time the apartment is warm, probably to excess; but soon the blaze grows low and dim, and when the upper layer of substitute has been burnt clean away, the rubbish is left black and unconsumed; the temperature falls low—too low, for you feel damp and chill; and the atmosphere of the apartment, charged with dark sulphurous fumes, grows stifling and oppressive. Moreover, when you have occasion to examine the grate, you will probably find that the top blaze, short though it was, has proved rather too strong for *it*; the back is split, and the ribs are begun to be eaten through. This is bad enough, even for once; and when it comes to be repeated day by day, you can readily imagine the aggregate result.

So, truly, is it with alcohol as a combustible accessory in our frames. It burns brightly, and warms us for a time; but its glow soon passes off, and the reaction is very cold; the waste material, as well as the combustible *food*—both intended by nature for burning—are left unconsumed; the whole frame is occupied, as it were, with an atmosphere of disorder, if not of disease, in

consequence; and the stomach, lungs, liver, and other organs in which the *treatment* of the alcohol has occurred, are more or less seriously damaged thereby. Nay, they are certainly ruined in the long run — and that at no distant date, if the alcoholic burning be on a large scale, and continued. And, moreover, habitual excess, as we have seen (p. 77), may ultimately convert the entire man into a slow *match*, which, when brought into contact with an accidental spark, burns slowly away, leaving no trace save an offensive oily residuum.

The power of alcohol as a means of enabling us to endure a diminished temperature, then, is very limited. It may be employed now and then, in cases of extreme cold, when no sufficient food or other natural means of heat are at hand, or when there is no time to wait for food's leisurely digestion — just as we throw a piece of cannel coal upon the low fire, to brighten it up again. It sputters and sparkles cheerfully in the hearth; but when its flame is over, we are content—the more especially as during its brief blaze it has cost us some little trouble to pick its burning sparks from off the carpet. It is neither safe nor suitable fuel for continuance. And when its glow goes out, the room feels very dark: it is time to go to bed.

To endure cold, let us be well and warmly clad, so as to retain the heat already existing; taking good and sufficient exercise, if possible, so as to maintain energetic circulation of the blood; avoiding over-exertion and fatigue, which necessarily bring failure and depression in both the nervous and the circulating systems; taking sufficiency of food, nutritious and calorific; and, if op-

portunity serve and require, availing ourselves also of a due proportion of the safe and simple stimulants — tea or coffee, warm.

As examples of nutritious food, for repair of tissue, say beef, or mutton; of calorific food, say fat, butter, or oil in any form. According to Liebig — the great chemical authority to whom we have already appealed in this matter — one pound of fat is equal to three pounds of whisky as a heat-generator; or, to put it in a money form, one shilling's worth of oil will go as far, in this way, as twelve or fifteen shillings' worth of brandy.* Give me a good hearty meal of wholesome mixed food, with bread and plenty of butter, and a hot cup of good coffee, and I am then better prepared for withstanding the frost and snow, than your wiseacre who uses the alcoholic warmer, eats sparingly, and boasts of his small appetite. Nay, with such a lining I am better equipped than he who, to a cargo in all respects similar to mine, *superadds* a single "caulker."

Nature teaches us this. Look to the Laplander and Russian. Their favorite food is fat and oil. And Europeans speedily get accustomed to it, too, in these climates. There is many a lad in Scotland who has a stubborn aversion to the fat of meat; he pares it off, and piles it on his plate, let his thrifty mother say what she will. But send him as a cabin-boy on a Greenland

* Even if the respective money values were reversed, the oil would be the better bargain. From what we have seen, alcohol was dear at nothing; the price is paid afterwards, in many a successive instalment, and with compound interest. It may be sweet in the mouth, but it is very bitter in the belly.

voyage, and in the northern latitudes he will speedily get over that little difficulty: what he nauseated at home he will relish there.

Oil or fat, we have seen (p. 131), is the best calorific, chemically considered; starch and sugar the next; alcoholics quite in the shade. How scientific man by nature is, in regard to the two first! In cold climates, he instinctively prefers fat meats and oils; in warm climates, he eats farinaceous food; in temperate climates, he ought to judiciously combine the two kinds of diet. The Laplander eats his lard with gusto; the Hindoo his rice; the European has his variety. Who taught any of them to take to the lowest and worst of the calorifics? Not nature; but vicious custom. Not a friend, but "an enemy hath done this." And they are without excuse. For while nature gives an instinctive relish for what is the proper calorific, intelligent observation will tell what ought to be avoided. Dr. Carpenter, for example, mentions the interesting testimony of an old man in Dorsetshire, who, though himself concerned in the sale of spirits, and not likely to decry them unnecessarily or unjustly, asserted, in regard to his employment as a fowler, "that although the use of ale or brandy might seem beneficial in causing the cold to be less felt at first, the case was quite reversed when the duration of the exposure was prolonged; the cold being then more severely felt, the larger the proportion of fermented liquors taken. And he further stated, that all the fowlers of his acquaintance who had been accustomed to employ brandy with any freedom, while out on prolonged expeditions, had died early; he and his

brother (who had practised the same abstinence as himself) having outlived nearly all of their contemporaries." We are also told that the Russian authorities, well satisfied of the banefulness of alcohol as a calorific, interdict its use absolutely in the army, when troops are about to move during extreme cold; part of the duty of the corporals being to smell carefully the breath of each man on the morning parade, and to turn back from the march those who have indulged in spirits; "it having been found that such men are peculiarly subject to be frost-bitten and otherwise injured." And once more to quote from Dr. Carpenter: "The Hudson's Bay Company have for many years entirely excluded spirits from the fur countries to the north, over which they have exclusive control; 'to the great improvement,' as Sir John Richardson states, 'of the health and morals of their Canadian servants and of the Indian tribes.'"

The latest authority on this subject is one in all respects most competent—Dr. Rae, of the Arctic expedition; and his testimony is most explicit, that the effect of alcohol during extreme cold is merely to purchase a temporary stimulus, at the expense of subsequent great prostration.

IX. *The power of alcohol in relation to the endurance of heat.* Its friends would have it a very panacea: good against cold; good against heat.

If it is to be of any service here at all, it cannot be in consequence of, but notwithstanding, its virtues as a combustible and calorific. It must have some other mode of acting, sufficiently strong to counteract the

heat-generating tendency. And that can only be by its stimulant properties; rousing the nervous system from that state of depression and languor which so commonly results from exposure to extreme heat.

Let us inquire into this matter. Can it be that alcohol is remedial to the effects of heat on the general system, as it is to the effects of heat on a part? We all know that the external use of spirits of wine is an admirable remedy for a scald of the fingers—heat to cure heat. At first the pain is increased, but after a time it deadens, and passes away. How is this? Simply because at first the alcohol stimulated the part, and more especially its nerves; but afterwards its sedative effect took place, and hence the sensation of relief. And as of the part, so of the system, in one sense. I am too hot, and I take alcoholics to “refresh” me. They stimulate my nervous system at first, and for a time, and so give temporary relief from the sensation of exhaustion. But then comes with certainty the reaction, the depression, the languor aggravated and augmented; and the sedative result which was useful in the scald on the part, is prejudicial now on the system. The only escape from the otherwise inevitable evil would be, to take the stimulus in continued frequent repetition, as in fever, or collapse (p. 44); truly a most dangerous line of practice, and liable to a terrible consummation.

But further: During labor with exposure to great heat, there is, on the one hand, much disintegration of tissue constantly going on, while, on the other, there being small need for combustion, so far as the production of heat is concerned, but little, comparatively, of what

ought to be consumed is so disposed of. The consequence is, that the combustible part of the food and the waste material of the blood tend to accumulate within the system. The accumulation of the latter, among other evils, induces a feeling of prostration and lassitude; and this feeling must, of course, be increased by whatever tends to increase such accumulation. Now, that alcohol acts in this way is indisputable. It consumes itself, taking the place of the "waste," which it helps to make; and thus must ultimately enhance rather than relieve the sensation of fatigue as well as its actual amount.

In hot exposures—natural or artificial—let the working man eat sparingly, especially of "the fat of the earth;" and let him eschew alcohol as a "poison of the blood," which it really is. In any temperature we have seen it to be unsuitable as a refreshing beverage, in continuance; in a high temperature it is specially unsuitable and unsafe. In India it is notorious that the "fast livers" are the soonest to die. Live temperately, and on suitable diet, as the native does, and you will bear the climate almost as well as he. But stuff the stomach with animal food like a Laplander, or swim it in alcoholics—like a Scotchman, shall I say?—and then you will speedily become the victim of disease. Do both, and you may order your coffin when you please.

But, says some one: "Look how the man sweats! That loss must exhaust him, unless made up. Surely beer, porter, spirits and water, are good for that?" Not at all. The sweat is but water, and let the leakage be supplied by water. As one function of the lungs is to

generate heat by intra-combustion, so one function of the skin is to moderate heat by moisture and evaporation on its surface — sweating. Now “evaporating lotions,” made by alcoholics, are found to be very cooling and pleasant *for external use*; but when the cooling agent has to be *filtered from within*, a more suitable material is required — and that is water. Men find this out for themselves, untaught — save by experience. A blacksmith at his forge, a fireman at his engine, a glass-blower at his furnace, is drinking largely as he sweats profusely; but he is not taking alcoholics. Perhaps he is “a drinker,” and cannot do without them altogether. But he reserves his dose as a *bonne bouche*, till *after* he has got home; his work and sweating over for the day. *During* his sweating he swallows water, ginger-beer, lemonade, or some such simple drink—it may be almost in bucketfuls; finding that these are sufficient, not only to meet the wants of his system, but to meet them more thoroughly and suitably than alcoholics would do.

“But did you not say that water, taken beyond the demands of thirst, tends to accelerate the change of tissue (p. 63)? and will not such draughts consequently exhaust the man, instead of refreshing him?” No. His state is peculiar. His thirst is great, and there is *tolerance* of the remedy. It will not be easy to exceed either. And if he did, his stomach and digestion will be left so free and unfettered as readily to make up the loss again, by good digestion waiting upon wholesome appetite.

The unsuitableness of alcoholics in hot climates is borne ample testimony to by those most competent to

judge. No one will suspect the gallant Rajah of Sarawak of being a "milk-sop," in the ordinary acceptation of the word. Yet he tells us that he is perfectly satisfied of the necessity of abstinence in those who would successfully bear up against the danger and fatigue of such climates as that of Borneo. Dr. Jackson, too, a great authority in all matters connected with the hygiene of armies, has left his record thus:—"Personal experience has taught me that the use of ardent spirits is not necessary to enable an European to undergo the fatigue of marching in a climate whose mean temperature is between 73° and 80°, as I have often marched on foot, and been employed in the operations of the field with troops in such a climate, without any other beverage than water and coffee." (On one occasion he marched 118 miles in four days, in Jamaica, carrying weight equal to that of a soldier's knapsack). "So far from their being calculated to assist the human body in enduring fatigue, I have always found that the strongest liquors were the most enervating; *and this in whatever quantity they were consumed.*" "My first voyage was to Jamaica," says Sir John Ross, R. N., "where the captain and several of the crew died. Excepting that I never drank any spirits, I took no care of myself. I exposed myself to the burning sun, slept on deck in the dew, and ate fruit, without feeling any bad effects. *I never tasted spirits; and to this alone do I attribute the extraordinary good health I enjoyed.*" Lately, I had the advantage of conversing on this subject with the veteran Governor of Gambia; and it gives me much pleasure to adduce here his important testimony to the same effect

Having passed nearly twenty-seven years of his life in foreign service, "within the tropics, and frequently in the most unhealthy stations," he attributes the preservation of his life and health, under God, mainly to this, that from the first he eschewed alcoholics and tobacco. A very large proportion of his comrades he has laid in the grave; and he accounts for their predecease, not by any difference in their constitution or service, but solely by the difference in their regimen. At first he tried both ways of it; and on that account his evidence is all the more valuable. "In many arduous, extensive, and severe expeditions, I used solely *tea* as my beverage: and I always felt free from fever and thirst, well sustained, up to any work (even with the mercury 120° in the shade), and hard as a flint. But, on the contrary, when I used the usual* liquids imbibed by travellers in the tropics—brandy, or rum and water, pale ale, Barclay's XXX—I was invariably heated and thirsty, muscles relaxed, nerves irritable, temper ditto; and what on other occasions constituted pleasing exertion, became more or less labor. Pluck, rivalry, or resolution, like the raven of Barnaby Rudge, 'never to say die,' kept me up to the traces with an extra waste by tear and wear of the constitution. Besides, the dose of alcohol once freely used, must be frequently repeated, and *increased in strength*, else it loses, and that rapidly, its falsely stimulating qualities. I have known an officer not thirty—nay, twenty-five years old—commence with *one*

* Strange, what a binding, blinding hold *custom* takes of rational men! "*Usual!*" That is the evil.

glass of brandy and water in the morning, and at last require *one bottle* (or rather consume it) of the *pure spirit*, before noon." He then proceeds to an "unqualified assertion that *tea* in all tropical countries, and under all circumstances, is not only more safe and sanitary, but infinitely more sustaining than any other liquid." "I have served or lived in all the West India colonies, and been in Africa too, and I never knew a dram-drinker, a soaker, a 'jolly trump'—be he of the military, medical, legal, commercial, or any other profession—long-lived, healthy, or *always equal to the duties he was paid for and called upon to perform.*"

With one more quotation from the gallant Colonel, I shall be satisfied; bearing upon what may be considered a necessary deduction from what we have already considered—viz., that alcohol is equally ineffectual in sudden alternations of temperature, as in the extremes of either heat or cold. "In 1846," says he, "I joined a party that made the ascent of the Blue Mountain Peak, Jamaica—an elevation of 8000 feet above the level of the sea. After riding thirty miles, we commenced climbing up the last 2000 feet, and accomplished the task in three hours, forty minutes. There was no path or track sufficient to steady a goat; we had to hold on by the trunks, branches, and roots of trees and plants, climbing up hand over hand, without relaxing our exertions until we reached the summit. I indulged in cold tea; my friends, in libations of champagne, pale ale, porter, or brandy and water; and the result was, that the more they drank, the more thirsty they were. When we gained the peak, some reached it unable to enjoy the

romantic view; others flung themselves on the ground exhausted, declaring that if they were caught again ascending, why — no matter what. We remained the night, which proved bitterly cold; the mercury falling from 95° to freezing-point. I still continued constant to the China leaf; and next day made the descent fresher and more vigorous than any of the party, although I did lose what I could ill spare from my thin carcase — three pounds in twenty-four hours.”

Such testimony is surely conclusive. Yet I cannot forego the opportunity of adducing the authority of two other names — perhaps the most popular of the day. Livingstone, in all his African wanderings, has been a water drinker, on principle. In his last and greatest journey, he started with one bottle of brandy, as a medicine; but it was accidentally broken to pieces within the first few days; and its loss, even as physic, was not felt. The gallant, glorious Havelock was a water drinker, too. In his arduous campaigning, he knew the value of grog, sparingly and judiciously employed so as to help men to great exertions, on an emergency, when neither food nor rest can be obtained (p. 117). But on general principles he set his face against alcoholics in the army, and especially in India — satisfied of their deeply injurious influence on both the mind and body of the soldier. In his “Narrative of the War in Afghanistan,” he tells us “that though Ghuznee was carried by storm, after a resistance stout enough to have roused the angry passions of the assailants, the Affghans were everywhere spared when they ceased to fight; and it is in itself a moral triumph exceeding in value and duration the praise of

the martial achievement of the troops, that in a fortress captured by assault, not the slightest insult was offered to one of the females found in the Zunanu within the walls of the citadel. This forbearance, and those substantive proofs of excellent discipline, reflect more credit on officers and men, than the indisputable skill and valor displayed in the operation. But let me not be accused of foisting in unfairly a favorite topic, or attempting to detract from the merit of the troops, when I remark in how great a degree the self-denial, mercy, and generosity of the hour, may be attributed to the fact of the European soldier having no spirit-ration since the 8th of July, and having found no intoxicating liquor amongst the plunder of Ghuznee. No candid man of any military experience will deny that the character of the scene in the fortress or citadel would have been far different if individual soldiers had entered the town primed with arrack, or if spirituous liquors had been discovered in the Affghan depots. Since, then, it has been proved that the troops can make forced marches of forty miles, and storm a fortress in twenty-five minutes, without the aid of rum, behaving, after success, with a forbearance and humanity unparalleled in history, let it not henceforth be argued that distilled spirits are an indispensable portion of a soldier's ration."

X. *The power of alcohol to avert disease.* Whatever lowers the condition of health, invites and favors the invasion of disease. And there is no more common cause of such depression, than the accumulation of waste material within the system. Indeed, this is not seldom

itself a cause of disease of the most serious kind—fever, for example. Now alcohol, if it do not produce, must necessarily aggravate this condition; and, therefore, we cannot see how, when taken as a means of preventing disease, it can have any other effect than simply to favor its occurrence. Such is the voice of experience, especially in hot climates, as can be readily understood. Even in this country, we have not far to go for facts. In hospitals, it is not the abstinent but the alcoholic nurses and attendants that are struck down by contagion. And when cholera is scourging the land, you may predicate as well as trace its progress, by reference to the sober or drunken habits of the people. In that hamlet, or household, who is the first victim? The drunkard. In that district, which is the spot most plague-stricken? That in which whisky is known to be most largely consumed.

Of 70 male adults affected with cholera in an Edinburgh hospital, in 1848, only 17, even according to their own account, had led *tolerably* temperate lives. And of 140 females attacked by the disease, only 43 were reputed sober.

Moreover, besides rendering the patient more liable to the attack, it reduces his power of enduring it when it comes. As to fever, for example, Dr. Davidson has recorded a very significant fact—viz., that out of 370 cases, the death among the intemperate amounted to one-third of the whole; among the temperate only to one-seventh. And Dr. Craigie states that out of thirty-one deaths from fever, in his hospital-wards, only two occurred in temperate persons.

Alcohol has no power of acting as a preservative against disease; nor can it even prevent decay—till we are dead. But people have been somehow led, very generally, into an opposite belief, and—what is worse—they resolutely act upon it. Here, possibly, is a way by which the error has crept in. In the morning we are, in one sense, weak; refreshed by rest and sleep, no doubt; but with an empty treasury, so far as nourishment is concerned. The stomach contains no food, and probably the last portion of chyle has passed up from the bowels. For some hours, perhaps, the blood has ceased to be fed, and the circulation is consequently weak; moreover, much of the combustible portion of the food has been burnt off, and the temperature in consequence is apt to fall low. To face exertion and fatigue in such a case were not wise; and specially imprudent would it be at the same time to encounter the chance of communicated disease—whether by infection, malaria, or otherwise. The natural and proper mode of meeting the difficulty would be, to breakfast forthwith. This is the right thing to do. But perhaps it is not convenient; or custom has arranged it otherwise. The laborer has to do his morning's "moil" of work; the student has to execute his early task; the physician has to go his watchful round—and then to breakfast "with what appetite he may." But can nothing be done in the meanwhile? Is there no stop-gap? A crust of bread, a cupful of milk, or tea, or coffee, would answer well. But somehow that black bottle is always at hand, pushing itself forward as a *substitute*; and perhaps it has got some chamomile heads, or other herbs in it, to

qualify it by the name of "bitters." A glass of that is taken; the man feels comforted by it; his ideas of "the congruity of things," too, are satisfied; and forth he sallies, protected at all hands, as he thinks, against every bodily calamity. Now, we do not assert that this "substitute" is in every case noxious. In an emergency, and when nothing else is to be had, it may be better than nothing. But when the right thing itself can be procured, the substitute must ever be inferior; and the inferiority is special in this case, seeing that the substitute, by continuance, will prove not only noxious in other respects, but also diametrically opposed to the very object which we use it to obtain. The right thing is breakfast—food, not physic. The wise man takes his first regular meal, when it can be had, almost immediately after his toilet. The next best thing—breakfast being necessarily delayed—is the portion of *food* such as we have already named.*

Attention to this simple matter, I am persuaded, will save oftentimes from ordinary disease; and, moreover, will tend greatly to preserve men from the worst, and, alas, the most common, of all diseases—intemperance. "C'est le premier pas qui coute." It is this villanous alcoholic "morning" that is the first fatal step to many in their downward course of drunkenness. And here I

* Europeans in India have been taught by experience the wisdom of such arrangement. Awaking at daylight, languid and weary, after probably a restless night, they have their *chota-hassaree*, or small breakfast. Thus revived, they drive or walk out, employ themselves in household affairs, or transact business; and then, about nine o'clock, assemble to the regular morning meal.

would earnestly urge on all husbands, and especially on all wives, a simple domestic arrangement. The working-man, as he creeps out of his home, morning by morning, in cold winter, is perhaps shivery, dull, dispirited; uncomfortable, unwashed, unrubbed, he has huddled on his clothes, half consciously. His stomach is empty, and his energy is low. As he trudges along, a want is plainly felt within; and the feeling of it becomes all the more palpable and painful, when passing that lurid light of the early publican.* His case has been considered for him; the "licensed victualler" has most thoughtfully provided a "substitute" for his food; and the poor man, by a kind of helpless instinct, trundles down the steps, and drinks his accustomed "morning"—as a silly moth circles in the flame, little dreaming that he is to be so cruelly scorched thereby. This is the beginning; we need not here tell the middle and the end. Well, to prevent all this, let a little coffee be made over night, and set past with a bit of bread and butter, and, if the finances will afford it, an egg. In the morning—however early—the gas is lit; and on it is a simple tin arrangement for heating the coffee. By the time the man is washed† and dressed, the coffee is hot. Then let him swallow his egg raw, eat his bread and butter,‡

* It's the early bird that catches the early worm," said a sage monitor to a little man who had overslept himself. "Yes," quaintly replied the yawning boy, "and what a fool was the worm to be up, so as to be in his way!" How painfully applicable is this well-known bit of humor to the case in question! The early worm in this case so easily and opportunely caught, is indeed a fool.

† Washing is quite essential—and it implies rubbing. *Vide* "Labor Lightened, not Lost."

‡ In winter, the butter should be tolerably *thick*.

and drink his coffee. This is a good small breakfast; it will keep him warm and comfortable; he will feel no want of the morning dram; he will be able to snap his fingers at his considerate friend, the publican; and after some hours of hard work, he will return to a comfortable meal, both less fatigued and less prone to disease than he otherwise would be. This is the optimism of the thing. But if we cannot get all, let us have at least an instalment. If there be no egg, let us have the bread, butter, and coffee; if no butter, let us have the rest; if neither butter nor bread, let us still have the coffee; and, alone though it be, it is worth a thousand of the alcoholic "mornings." There is no excuse for withholding this simple arrangement. The wife need not bestir herself at all in the morning—unless she choose,* the gas must be lit at all events; the little heating apparatus may be had for a few pence, and, once there, it will last a lifetime; while the expense of the coffee is not greater, if so great, as that of the noxious "substitute."

XI. *The power of alcohol to produce disease.*—With less than no power to avert disease, though with considerable power, when given medicinally, in suitable circumstances, to modify and restrain it, the power of alcohol to produce disease, when taken unnecessarily and in excess, is all but incalculable. Who has not

* Nay, there is no need for a wife at all, for the matter of that. A bachelor can carry through the whole transaction by himself quite well. Only a wife does it more handily; and a very good wife, so far from grudging the trouble, will take a pride in "this labor of love."

stood amazed at the impudence of the quack, who unblushingly advertises his nostrum, warranting it to cure all, or nearly all, the diseases that flesh is heir to? Alcohol were no quack were it to claim an equal power; not, indeed, in the way of cure, but in the way of production. "Methinks it doth protest too much!" "Nay—but it will keep its word." Diseases of the brain, of the lungs, of the heart and arteries, of the stomach and bowels, of the liver, of the kidneys, of the skin; gout and rheumatisms; dropsies; palsies; scrofula; premature decay; general poisoning; delirium, epilepsy, fatuity, madness—these are but a part of the long black list that might in sad and sober truth be enumerated, as more or less directly caused by alcohol.

This is neither the time nor the place for entering upon detail in regard to this. We assert the fact, and defy its contradiction:—There is no one cause of disease, in this country, one-half so prolific as alcohol. And Pandora, as she numbers and estimates the numerous progeny of her box, may well fondle this one especially—"Many daughters have done virtuously, but thou excellest them all."

And the worst of it is, that the disease so induced does not terminate with the life of him or her who produced it. If, unhappily, children be born, they will inherit the evil of their progenitors: stunted in body, and often in mind;* fatuous, or foolish; drink-loving,

* According to Dr. Howe, in his report on idiocy to the Legislature of Massachusetts—"The habits of the parents of 300 of the idiots were learned; and 145, or nearly one-half, are reported as 'known to be habitual drunkards.'"

and drunken, in their turn ; scrofulous, rheumatic, consumptive, weak, useless. This is one of the punishments of sin in the present life, which may in sad bitterness be traced downward from parent to child—"iniquity of the fathers visited upon the children, and upon the children's children," even "unto the third and fourth generation." *

XII. *The power of alcohol to cherish old age.* "The old man's milk !" This is one of the many *aliases* that alcohol trades under. "By all means," say many, "keep strong drink from the lad and the boy—'corn is not for *staijs* ;' but the grown man, if he be discreet, may take at least a little with impunity ; and for the old man, a cordial is absolutely necessary ; it rouses the feeble heart, and warms the chill limbs, and ever and anon helps the ebbing tide to flow again." Very plausible, and very pretty ! Unfortunately, it is not true.

The life of the old man is a quiet, reduced, gentle affair ; with none of the tumult of youth, and none of the energy of middle age. The machinery is well-nigh worn out ; all is feeble, and parts are wanting, or but ill repaired. The play of a strong and sudden steam-power would now be very dangerous.

All is well arranged by nature ; and all would be well, comparatively, were we but content with the arrangement. The engine is crank and weak, but little coke is taken in, but little steam is generated, yet the piston

* Dr. Livingstone tells us that consumption, scrofula, stone, are quite unknown in Central Africa. Is this happy immunity connected with the absence of alcoholics that reigns there ?

plays pretty well in its own weak way. "But no," says the wiseacre, as he rudely pokes the fire, "the coke must be made to burn more brightly, and more must be shovelled on; the working power must be increased, for we cannot bear to see the wheels revolve so leisurely"—down-hill, and steep in the gradient, though the tramway be.

The old man's appetite is small, because he needs but little food; little food is needed, because he is not intended for much work; the little work he does, produces more or less disintegration of tissue; and the feebleness of his circulation, and breathing, and power of excretion, make it difficult for him to work off the "waste," such as it is. Yet, with prudence, a tolerable adjustment may be maintained; and such is nature's arrangement for the evening of our days. But you say: "No. We must have the bright light of morning, if not the flash of noon—if not always, at least now and then." An alcoholic cordial will stimulate the appetite, more food will be taken, and then—"Ay, there's the rub:" What then? That the food is not digested; or if it be, in part, it hampers the blood with what it cannot manage, the nervous system is roused to call an action from the various organs which they cannot bear; and the alcohol, oxidating in the lungs, shuts up the "waste" in a very dangerous accumulation. No wonder that the old man is in consequence made liable to apoplexy, and congestion of the brain; to palpitations and angina; to wheezing asthma, and bronchitis; to heart-burn and indigestion; to jaundice and bilious attacks; to gout and gravel; to

trouble of the skin; or to some sudden and great calamity from a plurality of morbid causes combined.

Look at the old man's leg. A wasted, shrivelled thing; the bone's edge as sharp as a knife, the skin loose as the pantaloons, the muscles flabby and weak. When the man is up, what say you to galvanising it by some powerful battery, so that it may disport itself, at least occasionally, as if in the leaps and gambols of its youth? Would not success imply great danger of a break-down? Rupture of muscle or tendon, or fracture of bone? And yet what is absurd and mischievous on the part, you would bring to bear on the whole system! By your alcoholic stimulus you would seek to jerk the poor old man into a convulsive and paroxysmal imitation of his younger days, the least injurious effect of which must be exhaustion, and acceleration of general decay.

So much for his body: what of his mind? That is intended for no adventitious stimulus such as alcohol's. It is evening-tide with him, and the light should be subdued, yet clear. He has accounts to settle, his house to set in order; he has a long way to go soon, and he would see clearly at least the path's beginning; he has to commune much with himself, much with those around him, and most of all with his God. He would be calm and composed as he approaches nearer and nearer to the solemn interview, face to face, with the yet Unseen but Not Unknown, and the then Judge of All. And what do you with this "cordial?" Do you not reflect that it has a special action on the brain, exciting, yet perverting? Rousing imagination, with which the old man has little now to do, for it is stern reality that is both beside

and before him; it is the last and great assize he is hastening to, and imagination has no place there. Diminishing self-control, abating the already enfeebled power of will, and tending to depress all that he would seek to exalt in his moral nature—unfitting him quite for that else promised mounting up with wings as an eagle, that running and not being weary, that walking and not being faint.

I protest that I know no more painful sight than the old man thus abused—often in mistaken kindness; his weak frame shaken and strained under forced potations, and his mind lapsed into a maundering state little short of inebriety.

And men call this food—cordial—milk—“the old man’s milk!” A strange perversion of words! Seeking bread, will ye give him a serpent?

In the case of children possessed of anything like fair health, the ordinary use of alcoholics is especially absurd and reprehensible. They need no stimulus; and it is well known that in them the nervous system is very intolerant of narcotics in any form. Opium, for example, must be given in very guarded doses, otherwise the most serious results cannot fail to ensue. And alcohol, having such a direct and powerful action on the brain, will most certainly not be borne with impunity, unless its use be demanded by the stern necessity of disease. Unless the law of tolerance intervene, the beer and wine given to children must ever prove more than mere non-necessaries.

XIII. *The power of alcohol to prolong life.* Enough has been said to render any formal consideration of this question altogether unnecessary. It has no such power save in the fancy of the fool, or in the wit of the humorist.

The one may tell us that —

“The best of all ways to lengthen our days
Is to steal a few hours from the night.”

But we know that such theft deceives itself, is soon detected, and comes to a bad end.

Or again: “Mr. —, if you really wish to lengthen your days, you must give up wine.” “I believe you, I believe you,” replied the witty barrister, with a sad smile; “for yesterday I took no wine, and it was certainly the longest day I ever experienced.”

And this is all. So far from prolonging, it shortens life. The drunkard dies soon; the free liver dies sooner than he otherwise would; and of the moderate but habitual alcoholicist it is no want of charity to say, that if he attain to a good old age, it is not *in consequence of* his “luxury,” but *notwithstanding*.

Let the sceptic try a simple practical experiment formerly hinted at (p. 77). Let him propose to insure his life; let him set down, opposite to habits, this answer: “Takes wine and spirits freely;” and we are much mistaken if the alternative proposed to him by the directors, of having either his proposal declined, or an extra premium assessed, do not bring him to another way of thinking. Or let him take this fact. There is a life-insurance office, last year issuing upwards of 2500 new poli-

cies, which has two branches: one solely for abstinents, the other for ordinary business—the insured in the latter being of course a fair average of “temperate” men. These two branches—abstinent and temperate—have been in parallel operation for about seven years; and the result is nineteen per cent. in favor of the former.*

Or let him step from the civil into the military department; and referring to the government returns regarding the mortality of troops in India, he will find these troops arranged in three classes—abstinent, temperate, intemperate—with their respective mortalities as follows: abstinent, 11 in the 1000; temperate, 23 in the 1000; intemperate, 44 in the 1000.

XIV. *The power of alcohol to affect the mind.*—This is undeniably great; but is it for weal or for woe?

Recall what has been already said upon this subject; and for the convenience of further illustration, divide the mental condition into these four parts:—1, the intellect; 2, the will, the governing and controlling power; 3, the moral emotions; 4, the animal passions and desires.

* In a private note, the resident director says: “The bonus in the temperance section was just 19 per cent. more than in the general section. I find that in the years 1855 and 1856 the amount paid on account of claims in the temperance department was considerably less than was paid in the general section; that is, comparing the receipts and disbursements for claims in the two sections. It is true, the claims in the general section were unusually heavy in 1855, but I have put the two years together. In the temperance section, we paid in the two years less than one-third of the amount received. In the general section, we paid £12,305 out of £26,912, which is not much less than half! These figures apply to the whole life-policies only, and give a decided advantage to the temperance section.”

Now, the well-ascertained effect of alcohol, when taken in any considerable quantity, is to stimulate No. 1, especially so far as the imaginative and ideal powers are concerned; to depress No. 2; to pervert and depress No. 3;* and to excite and intensify No. 4. In a larger dose, No. 1 is thoroughly perverted; Numbers 2 and 3 are extinct; and No. 4 is in the ascendant. With a larger dose still, the distorted remnant of No. 1 may hardly be recognised, while No. 4 reigns paramount, in unnatural excess. The evil desire of lust or revenge often remains, while the paralyzed body refuses to minister to its gratification. A pitiable spectacle indeed! Verily it is no stretch of language to say that drunkenness places man on a level with the brute! The language falls short of truth. He digs beneath that deep a lower deep, and in this the brutified man wilfully lies down and wallows.†

Such are undeniably the effects of alcohol in consider-

* The Rev. Dr. Hitchcock, of Amherst College, testifies that one of the decided results of his abstaining from wine was "the power of determining, with greater accuracy, the nature of the religious emotions;" while the Hon. Judge Brewster states—"From experience and observation, I believe that the use of fermented drinks is one of the most potent agencies in paralyzing the life of active piety and holy obedience."

† "A dram-drinker! Faugh, faugh!" says Christopher North. "Look over, lean over, that stile, where a pig lies wallowing in the mire—and a voice, faint and feeble, and far off, as if it came from some dim and remote world within your lost soul, will cry, that of the two beasts, that bristly one, agrunt in sensual sleep, with its snout snoring across the husk-trough, is, as a physical, moral, and intellectual being, superior to you—dram-drinker, drunkard, dotard, and self-doomed."

able and large doses. Taken in smaller quantity, the effects are less marked, but have still the *same tendency*. There is moral as well as mental loss; injury as to *what the man is*, with serious peril to *what he ought to be*. Moreover, let it be remembered that the effect accumulates by frequent repetition, and that no dose of alcohol, however small, can be taken without acting on the brain, and consequently we believe on the mind, more or less.

The ultimate result of such actings we have seen to be, in extreme cases, delirium, fatuity, insanity; mental disease. In the more protracted and chronic cases, intellectual perversion, animal ascendancy, moral abasement; mental degradation and decay.*

A man begins fairly, and continues respectable for a time. At first his indulgences are only convivial, and within moderate bounds. These bounds, however, are by and by transgressed—once and again. And after no long time, it too frequently happens that the love of, and dependence on, the unnatural stimulus have become too strong to wait for the social opportunity and social restraint. The drink is taken for its own sake, and secretly. The power of the drag is gone; and the downward movement is precipitate. "There is a difference, no doubt," says Paley, "between convivial intemperance,

* "The habit of using any intoxicating liquor," says the Rev. Dr. Leonard Woods, the great American divine, "tends to inflame all that is depraved and earthly, and to extinguish all that is spiritual and holy. It is a poison to the soul, as really as to the body." It is a truth, though from the mouth of Mohammed, that alcohol is a "mother of sins."

and that solitary sottishness which waits neither for company nor invitation. But the one, I am afraid, commonly ends in the other; and this last is the basest degradation to which the faculties and dignity of human nature can be reduced."

The *tendency*, as stated by the philosopher, I can from my own observation amply confirm. Many have I seen engulfed, who never dreamt of danger. "Ah, so and so is done for," I have often heard a bon-vivant say; "he has taken to brandy in the forenoon, and when a man does that all is over with him." These same men — quick to see the mote that was in their brother's eye, but blind to the beam in their own — I have seen, after but a short time, clutching their brandy bottle, morning, noon, and night — hopeless drunkards. "Look not thou on the wine when it is red, when it giveth his color in the cup, when it moveth itself aright. At the last, it biteth like a serpent, and stingeth like an adder."

And this brings us naturally to consider the power of alcohol under another and larger heading.

XV. *The power of alcohol as an instrument of vice.*— Of course, our present limits prevent anything but the merest sketch of this vast and terrible subject.

That alcohol, in its various forms, is largely used for vicious purposes, or at least with vicious effect, is too well known to all. The reason why, it is not difficult to understand. The first effects of alcohol are pleasurable, and to many minds in all ranks of life intensely so; it is their favorite sensual indulgence; and — assuming a virtue which they have not — they are ready to "com-

pound" for this one sin which they are specially "inclined to," "by damning those they have no mind to." The advanced effects, on the other hand—when moral sense and self-control are gone, and excited animal passion reigns supreme—afford a grosser gratification to "lewd fellows of the baser sort." Besides—and mainly—in both parties there is the evil nature, or unrenewed man, at the bottom of all the mischief, prompting to self-indulgence and sin; and on every side, all around him, there are special temptations, "thick as leaves in Valambrosa;" with evil *custom* varnishing and toning down the whole. Man's evil nature originates and maintains a desire, the gratification of which pleases the grosser sense; the all but universal use of the agent of evil, with the marvellous frequency of the extension of this to what is base and sinful, gives a cloak of commonness and conventionality; and the result is, that the whisperings of conscience, as well as the teachings of sad experience, are overborne and set at nought. The young are lured on by little and little; all but imperceptibly they wander further and further from the path of temperance and virtue; the quicksands of sensuality lay fast hold of their palsied limbs; the fiend binds them at his will, slowly but securely; and, ere they are aware, they have become the bond slaves of intemperance. This is the consummation of Satan's favorite scheme for thwarting man's redemption. By a lie he does it, as of old he compassed his fall. "It is good for *food* (?), it is pleasant to the eyes, and to be desired to make one wise." "Ye shall not surely die." "Your eyes shall be opened, and

ye shall be as gods." It is his master-piece of villany; he slays both body and soul.

Subdivide, once more, the effects of alcohol, and *its power as a producer of crime* becomes very plain. 1. In moderate dose, the imagination is at once quickened and let loose, the animal propensities are roused, and self-control is impaired. This state obviously disposes to the indulgence of lust, whether of a sensual or covetous kind. It is favorable to uncleanness and theft. 2. In a larger dose the animal is more roused still; reason is perverted, if not actually injured; moral perception and restraint fall low; and, the power of control weakening rapidly, the man is much at the mercy of the worse and baser passions. Hence anger and contention; rioting and revenge; assaults and housebreakings; and all premeditated villany.* 3. Increase still the dose. Then all is more untoward; and the man, beside himself, becomes more and more dangerous, so long as the brain remains in any degree subservient to his sordid sense, or the muscles obedient to his wayward will. Now he is ripe for sudden bloodshed, murder, rape. The tiger is not more savage than the man thus made a monster. Nay, the tiger is the better creature of the two, inasmuch as he follows the instinct of his peculiar nature, and in his savageness seeks but to satisfy a troublesome hunger, in the way which to him seems perfectly legiti-

* "When Bishop and his partner," says Sir Benjamin Brodie, "murdered the Italian boy, in order that they might sell his body, it appeared in evidence that they *prepared themselves for the task by a plentiful libation of gin*. The same course is pursued by house-breakers, and others, who engage in desperate criminal undertakings." —*Psychological Researches*.

mate. In the estimate of his fellows, he would be placed in the same category with a man fishing, or making a good bag by means of his gun. For a human being, transformed by drunken debauch into a fiend, we must look for a truer analogue than can be found among the beasts of prey. He is, as the law rates him, "voluntarius demon"—by his own act a devil. The deed of violence past, he may scarce remember it; and in one sense he may be said to have ceased to be responsible. But he cannot escape the guilt of having induced, wilfully and wantonly, this brutal charge; and, as has been well said by Dr. Wilson, in this view drunkenness may be itself regarded as a capital crime.

1. *On the individual*, the effect of vicious alcoholic indulgence is disease of the body, as we have seen. Sooner or later, it must come. Intemperance cannot dwell in a sound frame; at least, it never does. Disease of the mind, too, is not far off. It may be delirium or insanity, temporary or confirmed; or it may stop short of that, resting at senile drivelling, and childish folly. The moral sense is blunted;* and the better part of man sustains both degradation and decay. The soul is dying; and, if grace restrain not, will soon be dead—forever.

* Ultimately, the man becomes a moral idiot. The moral principle is not only lessened, but absolutely extinct—eaten out, as color is by acid. But two days since, in visiting a young man, well born and of high connections, become a drunkard, with one breath he assured me of his being a man of honor and a gentleman, and with the next told me a deliberate falsehood. To such, indeed, lying, cheating, stealing come quite naturally: they have no perception of either the sin or the shame.

One day, at a railway station, when passengers were congregating in groups, before the starting of a train, my attention was attracted to a tall middle-aged man, who was slowly making his way to lean against a pillar. His dress, evidently once black and reputable, was soiled, and torn, and covered with mud. His limbs were bent and tottering; his hands hung loosely by his side, and shook like aspens. His face was haggard and pale—or rather would have looked so, but for the dirt it bore; unwashed, unshaven; a brown rivulet of snuff massing the upper lip, and trickling down the chin; the eyes fixed, and of a glassy stare, with the eyelids half closed; the jaw dropped, the mouth open, and slaverling like an idiot's. His hat—muddy, and crushed, and awry—was fixed, hard and low, upon his crouching head and shoulders. His shoes were brown and broken. He might be sixty; he might be forty; all too plainly he was a drunkard, seeking a country home, after wallowing for at least one night in the city's mire. Something told me that he was no stranger; many years must have passed since I had seen him; but in a few minutes memory carried me through all his antecedents. I remembered him a university student, of almost the same age and standing with myself; the gayest of the gay, in heart and disposition; gentle, loving, kind; studious, too, and talented. I remembered him licensed to preach the gospel; popular, respected, devoted. I remembered him settled down in a country charge; married, the father of a hopeful family, the centre of a loving circle, the pastor of an attached flock. Then came the dark cloud. He had always been of social habits, and he

had indulged them; through indulgence the power of drink had crept upon him unawares; and now, with a bound, it took him by the throat, and held him down. I remembered to have heard strange rumors about that manse; there had been surmises, even among his distant friends, of a sad fall there; and news had come one day, like a thunder-clap, of drunkenness, and delirium, and deposition. That was long since; and the sad story had faded greatly from my recollection. But here he stood, a fearful proof and concentration of it all. His body that of a paralysed idiot, at least for the time; his mind sunk to nothingness; his soul — and the souls of his people — what of them? Alas! alas! these shaking helpless hands of his are stained with the blood of souls committed to his care — himself a hopeless castaway.

Yes, the power of alcohol, in vice, is terrible. Its bursting is like that of a shell; annihilating the object struck, and in many fragments dealing death and destruction far and near.

2. *On the family.* What does it here? Dirt, disorder, discord are its first fruits. Go through that hamlet, and you may tell off the drunken from the sober by attending merely to their outward estate. That white-washed window; the ivy, honeysuckle, or woodbine climbing up its side; the well-trained rose, or humble daisy, in the garden-plot; the door well swept, and the floor all clean; the table shining, and the fire burning bright; the well-filled pot boiling apace, or simmering happily; the bed made smooth, and the tidy coverlet without a wrinkle; the housewife herself trig, and neat, singing and smiling, and busy still with her broom or

brush—these are no marks of drunkenness. Look for their counterparts, and you will find it there.

And with it much other bitter fruit; crimination and recrimination; scolding, swearing, woe, and weeping; red eyes and black eyes; broken heads and broken characters; cold, and no fire; hunger, and no food; children, but no comforts—lying, straying, stealing; sickness, and no sympathy; debt, and no credit; disease, death, the grave—and no hope beyond.

Poor drunkard!—

“Your friends avoid you; brutishly transform’d,
They hardly know you; or if one remains
To wish you well, he wishes you in heaven.
Despised, unwept, you fall.”

And what brought this dismal brood of evils into the family? The bottle. It came, called, “looked in,” as a *friend*! Fathers and mothers! husbands and wives! what think you of a neighbor that, under the pretence of friendship, worms himself into your home, and, setting you by the ears, breaks your peace for ever; stealing this, and breaking that, leaves your floor and walls bare, your hearth empty; blackening your character, and burning your self-respect, beggars you; luring you on to perpetration of grossest sin, laughs as he sees you sell your soul for nothing; and not done with you yet, sticks to your offspring, and haunts them through the world as drunkard’s brats!

His “power” is terrible; resist it with all your might,—and—here is the secret of success—*from the beginning*.

3. *On the community at large.*—Taxes and public bur-

dens of all kinds accumulate; penitentiaries and prisons grow full; judges and jailors are overworked; idleness, ignorance, poverty, crime, spread like a pestilence, disease doubles its victims, and grave-digging grows a thriving trade; the country is bleeding at every pore, from many an inward wound; and in their own persons her sons and daughters are parting with both the bulk and the bravery of former times.

There is a hale and hearty centre yet, thank God; but it is being sorely pressed and put to. Sober industry must redouble its labor, that drunken sloth may live and fester.

And worse remains behind. Nations have no hereafter, and their sin meets its guerdon now. A nation of drunkards may well tremble, knowing that "the Lord God Omnipotent reigneth."

XVI. *The power of alcohol to resist and neutralize the gospel.* — That such power exists, in great intensity, necessarily follows from what has gone before. The gospel, being the true agent of man's elevation and reform, is opposed bitterly and unceasingly by the Enemy of man. He seeks to thwart it in every way; and in his experience he seems to have found intemperance the most effective of all his hellish antidotes. Look to China. "As shown by Mr. Matheson, in his excellent pamphlet, when did opium enter that country? When the gospel came. Men sought to introduce the Bible, and Satan took care that intemperance by opium should accompany it. And where does drunkenness most prevail? In those European countries, generally speaking, where the

Bible is most free. Not that Christianity produces drunkenness; not that true Christianity is open to the allegation by the heathen of being synonymous with drunkenness; but because Satan takes care always to accompany the Bible with strong drink, as its antidote, to neutralize its effects.* While the Son of Man, by his Spirit, sows the good seed, Satan comes behind and sows his cruel tares."†

XVII. *The power of alcohol in attaching itself to its victim* — the last, but not the least, in our enumeration. The speckled boa winds itself slowly round the hapless antelope, breaks all his bones, beslimes the body with his tongue, and swallows it at leisure. So does alcohol with man. The foolish fellow thinks that he is consuming the whisky; all the while the whisky is consuming him. Or, rather, the seducer is as some fiend, in fairest form of woman, who with blandishment and smile lures on the silly one. "With her much fair speech she causeth him to yield, with the flattering of her lips she forces him. He goeth after her straightway, as an ox goeth to the slaughter, or as a fool to the correction of the stocks; till a dart strikes through his liver; as a bird hasteth to the snare, and knoweth not that it is for his life." Her arms, once around him, will scarce let go their hold. At first she leads him gently, in dance, and gaiety, and enjoyment; their way is among flowers, and

* "Wherever God erects a house of prayer,
The devil always builds a chapel there."

And the devotion he most favors is that at the shrine of the publican

† Speech in Free General Assembly, 1857.

green meadows, and pleasant groves ; but as they whirl faster on, the sky darkens, the road grows rugged ; there are briars and thorns, and dismal swamps, and dreary wastes. Now he is alarmed, and struggles to be free. Violence, reproach, supplication, are all in vain. The hold grows tighter, and the giddy pace still mends. The night is darkening now ; and there are strange sounds and gleamings in the air. Other cold hands are on him ; and other voices whisper venom in his ears. The yawning gulf is nigh at hand ; and another power than man's alone can save him.

CONCLUSION.

Such is our estimate of the place and power of alcohol. Gathering up the points of the imperfect sketch, let us look them in the face. And though, once more, repetitions may offend the fastidious, not a few perhaps may think, with me, such reiteration warranted ; satisfied that nothing save repeated blows can break this hard crust of custom.*

Alcohol is a poison ; potent and pernicious. To whom are we to give it ? The ordinary and legitimate use of poisons, as such, is to destroy life that is noxious. Rats and mice are slaughtered thus, in a useful way, by arsenic ; and game-keepers find strychnine very effectual in removing "vermin." But these lower animals are

* I know well enough that there are unseemly, if not unnecessary, repetitions in the preceding pages. My apology is, that the whole has been written in patches and portions — not continuously ; and I have aimed at practical usefulness in the matter, rather than polish in the manner or style.

too wise in their day and generation to be caught with alcohol. They repudiate it. Sweeten and disguise it as you may, *they* turn from what *man* at first takes, if not readily, at least willingly, and afterwards comes to devour with greediness. Learning industry from the ant, and providence from the bee, he may from these others take a lesson in dietetics, and be "wise."

Whom shall I poison? Not myself. For there is a mandate that I dare not break—"Do thyself no harm!" Not others—"Thou shalt not kill!"

What shall we do with it, then? Use it, like other poisons, in small quantities and medicinally.

Alcohol is a medicine; powerful and often precious. When the exigencies of nature struggling against disease require its help, it does good service under skilful regulation. But, like other strong remedies imported from the poison class, it needs careful watching, both as to the dose and its continuance; and it needs, still more, a judicious estimate of the circumstances which seem to demand its aid. If right in your diagnosis, you may give the drug freely, yet with care; satisfied that the law of tolerance will bear you safely through. You will tell upon the disease favorably; and you will not hurt the system either now or hereafter. But err in your diagnosis, and be at once lavish and lax in your dosing, then nothing but evil can follow. The disease will be aggravated; and, the law of tolerance becoming adverse, you risk and may ruin the system that you seek to save.

Remember that this medicine, like opium, when given or continued unnecessarily, even in moderate dosing, has a dangerous and seductive tendency to lay hold of the

frame; refusing to let it go—inasmuch as it has itself engendered a morbid necessity for the continuance of its use. The skilful practitioner is distinguished from the unskilful, in nothing more than in knowing when to stop as well as when to begin his remedies.

Remember, still more, that alcohol, far beyond any other drug, has an effect on mind and soul: harmless, when the body requires its careful and regulated use; most pernicious when given without necessity and without control.

Let patients beware of two things: 1. How they take this and other strong remedies at their own hands. 2. How they permit themselves to fall into the habit of unnecessarily depending upon the adventitious aid of any drug whatever. The stomach is a culinary stew-pan, not a pharmaceutical mortar, far less a laboratory. A system of constant pill-pilling is bad enough, even when the things swallowed are nothing worse than “Framp-ton’s,” “Cockle’s,” “Morison’s,” or “Parr’s.” But if the wilful valetudinarian, tired of simples, comes to a daily dabbling in arsenic, nux vomica, or such like, his state is all the more perilous. The system of “drugging” among members of the medical profession is very much given up; it ought to be wholly abandoned by the laity. Let them beware of giving drugs unnecessarily, either to themselves or others; and to this end let them take some pains to know what the *pros* and *cons* of the commoner medicines are: when they may do good, and when they may or must be hurtful. “My Lady Bountiful often does great harm, unthinkingly. Some one is reputed sick; and instantly a servant is despatched with a

bottle of sherry or port wine, with a request to know if brandy is required." * There is a common notion abroad that alcohol is the only true panacea; and that, for the emergency at least, and until more regular aid arrives, there is no casualty, by accident or disease, in which alcoholics, in some, or any form, may not be helpful to keep life in. "Freedom and whisky gang thegeather," madly shouted Scotland's poet. "Sickness and brandy gang thegeather," as madly say Scotland's people—"Tak aff your dram!" This is one of the "vulgar errors" which it is most needful to put down; founded on gross ignorance, and fraught with utmost risk. The "dram" must be "taken aff"—but in another sense than Burns dreamt of.

Let alcohol be limited to its original use. When first brought into the world, in its concentrated form, during the eleventh century—and they were "good old times," in one material sense, that passed without it—it was used exclusively as a medicine. Under the pretentious title of "aqua vitæ," it was doled out by the physician in small and guarded quantities to the sick; and, probably, in many cases, was not without its healing virtues. Would that it had continued thus—with some just claim to be esteemed the friend, and not the enemy of life! †

Let men know what it is, and what it can do; let them

* Speech in the Free General Assembly, 1857.

† Is "aqua" alcohol?

Yes; "aqua fortis."

"Aqua vitæ" once;

Now "aqua mortis."

forbear to seek from it what it cannot give; and let them cease to substitute it for what it is not.

Alcohol is not food. Instinct does not make it so. The child, like the animal, turns from it with disgust. Food satisfies; alcohol breeds thirst, and appetite; it beguiles the stomach into a craving that is unsatiable, till both sense and reason reel; the frame, even when saturated, is not satisfied, but like the daughter of the horse-leech, still cries, "Give! give!"

It is not food in any sense appreciable to *common* sense. Let it not be used as food. It cannot nourish or give strength; it can only stimulate. It cannot give working power; it can only hurry the expenditure of what you already have; and, further, it hampers and opposes you in getting that store renewed.

It has the faculty of generating heat, but in an evil way—preventing the legitimate and natural process, which would do the work better; while, besides, it leaves a noxious product behind, altogether unatoned for, and uncompensated.

It is useful as a calorific only on emergency. If I am exposed to great cold, if I have no food, or if I perceive a necessity for speedily raising the temperature of my body before the digestion of food, now taken, can have opportunity to bring its calorific power into play—then alcohol is useful. I use it accordingly; but with no intention of continuance. When my food has become digested, the need for alcohol is past; and, if taken then, it will do harm. In future, I will try and arrange matters so that the necessity for alcohol, by such emergency, shall not arise. With food and clothing—*put in*

and put on in time—I am content to meet the intensest cold that alcohol can set its face to.

In a warm climate, alcohol can never be of service, except in purely medicinal use; and even thus the tropical practitioner will find but little occasion for its services. While the man that uses it daily, and freely, as food, is literally with both his hands knocking nails into his coffin.

But there as well as here—though mainly here—people seem firmly set in the belief that alcohol is food, and may with all propriety be used accordingly; setting even such free and easy limits to their “moderation” as admit and imply “occasional” excess. The result is disastrous—in broken healths, broken characters, broken fortunes, and broken souls. Drunkenness is the scourge of our land. And the main secondary cause of its spread most certainly seems to be the false dietetic and domestic place of alcohol. Undo this fatal error; put back this perilous drug whence it came—into the medicine-chest and laboratory; and then I believe a master-stroke will have been achieved in favor of temperance, and all its happy fruits.*

* The jolly squire “who ate well, slept well, walked well, felt well—and that was all,” told us that he had never taken a dose of medicine in all his life, but once; and that was to oblige a nephew who had set up in the neighboring town as a druggist. Let men take a lesson from the squire. So long as they keep—and would keep—the evidences of health he mentions, let them avoid physic—of every kind, and more especially of this kind; and if their connections in life render it at any time expedient for them to bestow a little patronage on the alcohol-vender, it is not needful that they should *swallow* the purchase. In short, let strong drink be actually what it ought to be—“a *drug* in the market.”

To this end let me adjure you, gentle reader—in the name and in the cause of perishing millions—not only to give assent to such doctrine as this, but openly and fearlessly to act upon it, forthwith and always.

Those who have grown old in the absurd custom of the time will find a difficulty in suddenly making a change. Let them at least modify what they may not move. And warned by their own condition of partial enslavement, let them do what they may to deter following.

Grown men have no such drawback, when yet in the prime and vigor of their days. *Their* systems will have to sustain no dangerous shock; and their strength will be all the better for the shifting.

The young are adjured to consider at once their privilege and responsibility. They have no difficulty in not learning what others paid hard to unlearn. "Leading" not themselves "into temptation," they may look with confidence to Him who alone can "deliver" them "from evil."

Alcohol is a luxury, in one sense, no doubt. Its first effects are pleasurable; and to some frames intensely so. But its *tendencies*, even in truly "moderate" allowance, are *always* evil. These tendencies may be successfully resisted, and often are, through strength of principle, and manly self-control. But in how many a goodly frame is not the progress steadily onward and downward? And who can tell when the restraint which now hinders may snap in twain? The terrible characteristic of this luxury is its insidious power. With the suberviency of a slave it twines itself around you, obeying all

your commands, and ministering in every way to your comfort and happiness — for a time ; but feeling its hold secure, it suddenly rebels, and, laying you prostrate, tramples you in the mire. The rise and revenge of the cruel and cowardly sepoy is not more fiendish than that of your former slave. There is no indignity, no torture of body and mind, to which it may not in hellish ingenuity subject you ; ending with that mightiest massacre of all, beyond the power of any mere assassin — destruction of the crushed and broken soul.

Why is it that men will love, and live on, that which they ought above all things else to fear — that to which is given the power, not only to kill the body, but also to cast both body and soul into hell ?

Why will men carry and cherish that in their bosom which at the last stingeth like an adder ?

No man is safe. I have seen those at whose feet I had been life-long content to sit, to learn both wisdom and piety, drawn gently on, tempted, bound, enslaved ; men not long before eminent for worth and goodness, now secret tipplers, or drunkards but ill disguised ; once honored to bear the message of “good news” to many, and now themselves poor “castaways.”

This “luxury”—this “something separate” from food—this “dainty”—this thing “delightful to the senses”—is not safe for me — *whatsoever and whosoever I am*. I may remain its master ; but it may become mine : and if it do, I am lost — or at least in utmost peril. Why should the oak court the embrace of the ivy, if it know or even fear that the sycophant, as it creeps and clings around, will in the end suck all its sap, and leave it to

die a faded, withered thing, fit only as a fagot for the burning?

And why should men, themselves safe—for the time—lead others on by the most powerful of all teaching—namely, example—to dalliance with this drug, when they *see* thousands *so led* perishing miserably and for ever?

Let honest men but think—opening their intellects as well as their hearts; and surely they will be forced to abstain from what is certainly something more—far more—than a mere “appearance of evil.” There is a time for its use. Let its use be limited to that time. All else is abuse; for which there is no time and no tolerance. It is then a positive evil, and of the highest and most heinous kind.

Let men learn its power, and act wisely on that learning. Let them know and remember that it has vast power as a poison—to be dreaded by all who would live and let live; great power too as a medicine—in small quantities, and skilfully employed; much power as a luxury, but of a most perilous kind; no power as food, save only in occasional emergencies; no power to sustain or even refresh a man, under either bodily or mental labor—and let them abolish the term “refreshments” in its ordinary alcoholic sense, as a most foul and fallacious misnomer; no power to afford continued and systematic protection against extremes of either cold or heat; no power to avert disease, but power almost infinite to produce it; no power to cherish old age, but only to cripple and confound it; no power to prolong life, but power to both hasten and embitter its ending; no power to

strengthen the morals or the mind, but power to debase, if not destroy the one, and weaken and pervert the other; a power to produce crime, and minister to vice, beyond what pen can write or tongue can tell—"sensual, devilish."

Let them know such power — and *fear it*.

The proper PLACE of alcohol for man's use is as a medicine. Let men put and keep it there. Its power then is both great and good.

Let them regard it no longer as an article of ordinary diet; for wholesome real food it is not, and power as such it has none.

Let them beware of it as a luxury; for though its power as such be great, it is often grievous. And, looking to the exigencies of the present time, let them resolve, in God's strength and in God's name, to deny themselves what to the man in health is *but* a doubtful luxury at the best, and is shown by sad experience rather to become "a mockery, a delusion, and a snare." "Wine is a mocker, strong drink is raging; and whosoever is deceived thereby is not wise."

TOBACCO.

**SNUFFING, SMOKING, AND CHEWING, ARE BAD HABITS, AND WE
ADVISE ANY GENTLEMAN WHO IS NOT HOPELESSLY ABANDONED
TO EITHER, TO GIVE IT UP.— *Medical Circular.***

N O T I C E
T O
T H E E I G H T H E D I T I O N .

IN this Eighth Edition I have made some alterations, chiefly as regards arrangement; but I find, that less or more of a desultory character must necessarily attach itself to a brochure, intended merely as a vehicle of Practical Observations. The reader will see that I have found myself called upon to make some allusion to the recent attempts at that fatal operation—excision of the tongue.

The object of the Author will be attained, if his Observations have any appreciable tendency in arresting the progress of excessive Smoking, by drawing the attention of the Public to so important a subject. It is difficult to estimate, either the pernicious consequences produced by habitual Smoking, or the number of its victims among all classes, old and young. The enormous consumption of Tobacco can be ascertained from

(ix)

X NOTICE TO THE EIGHTH EDITION

yearly returns made by the Government Custom-House; but its physical, moral, and mental deteriorations, admit of no such tangible analysis. These, although certain, are slow and imperceptible in their development, and it is therefore impossible to ascertain the extent of the injury which the poisonous weed inflicts upon the public health, or the alteration it must necessarily effect upon the character of its inhabitants. The consumption of Tobacco is stated to be, in 1853, 29,737,561 pounds, thus showing an allowance of considerably more than a pound, on an average, to every man, woman, and child, in the United Kingdom of Great Britain and Ireland. The prevalence of Smoking has been of late greatly on the increase, and the use of the narcotic commences with the young from mere childhood. Such a habit cannot be more lamented than reprobated. The injury done to the constitution of the young may not immediately appear, but cannot fail ultimately to become a great national calamity.

JCHN LIZARS.

EDINBURGH,
SOUTH CHARLOTTE STREET, 1859.

CONTENTS.

CHAPTER I.

GENERAL CHARACTERISTICS OF TOBACCO.

The Introduction of Tobacco into Europe—The question of its intention for the Use of Man discussed—The Botany and Chemistry of Tobacco considered—Physiological Effect—M. Fiévé, 13-22

CHAPTER II.

PRACTICAL OBSERVATIONS ON THE USE AND ABUSE OF TOBACCO.

Contagion from Cigar-smoking — Syphilis propagated by smoking tobacco—Condition of Paris—Effect on a Fever Patient—Local Effects on the Mouth — Ulceration of the Lips, Tongue, Gums, Mucous membrane of the Mouth, Tonsils, Velum Palati, Pharynx—Constitutional Effects enumerated — Dyspepsia from use of Tobacco—Diarrhoea—Effects in Cholera—Disease of Liver—Congestion of Brain — Apoplexy — Palsy — Mania — Loss of Memory—Amaurosis—Deafness — Nervousness — Emasculation — Cowardice—General Effects—Quotations from various Authors, and narrations of peculiar cases of poisoning by tobacco, 23-52

CHAPTER III.

COMMUNICATIONS AND EXTRACTS.

Opinions of Dr. Prout, Boussiron, Dr. Pereira, Orfila, Sir Benjamin Brodie, Dr. Cleland, Dr. Johnston, King James I., Rev. Dr. Adam Clarke, Mr. Solly, Dr. Wm. Henderson, Mr. Fenn, Dr. Tod, Mr. Anton, Mr. O'Flaherty, Dr. M'Cosh, Camden, Mr. Erichsen, Darwin, &c.—Cases reported in the Lancet, the Half-Yearly Abstract of Medical Sciences, Dictionnaire des Sciences Médicales, in the Account of Hospitals for the Insane in the United States, and in the Report of the Penna. Hospital for the Insane—Communications from numerous Scientific men in illustration of the evil effects of Tobacco 53-138

THE
USE AND ABUSE
OF
TOBACCO.

CHAPTER I.

GENERAL CHARACTERISTICS OF TOBACCO.

1. It is generally agreed that the use of tobacco in Europe, as a means of inebriation, originated in the introduction of the leaves of the plant into Spain from America. There is every reason to suppose that the plant previously existed in Asia, if not from the earliest times, though we have no very reliable authority for its having been used, at least to any great extent, for any of the purposes to which we have devoted it. I am aware that various old authors report, that the ancients of the extreme East were acquainted with the burning of vegetable substances as a means of inhaling narcotic fumes; and, indeed, when we consider their love of incenses, both as a luxury and an element of their religious cult, we need not be surprised at this; but we have no evidence that the smoking of tobacco was known in the Old World before the introduction of the plant from the New. It was in 1492 that Columbus first be-

held, at Cuba, the custom of smoking cigars; but it was not until some years afterwards that a Spanish monk recognized the plant in a province of St. Domingo, called Tabaca — a much more likely foundation for the name of the herb than that adopted by some, who assert that it originated in tabac, a tube used by the natives for smoking. That there was no particular aptitude in the European taste for the use of this herb, seems to me evident from the very slow progress which ensued even of the knowledge of its qualities. So late as 1560, when Jean Nicot, the French ambassador at the court of Portugal, reported of it to his sovereign, scarcely any thing was known of the foreign vegetable, and in place of the men who accompanied Columbus having taken to any imitation of the Cuban natives when they returned to Europe, it would rather seem that the adoption of the pipe is attributable to an Englishman, Raphelengi, who, having accustomed himself to it in Virginia, introduced the practice into England. Sir Walter Raleigh does not seem to have used the pipe until after the return of Sir Francis Drake in 1586, so that nearly a hundred years expired before even the roots of the habit were fixed in the English people. Nor, probably, would the practice after this have spread so rapidly as it did, if it had not been for the persecution to which it was almost immediately exposed. If it is true, as has been said, that a few opposing volumes will fix the roots of a heresy, we need scarcely wonder at the triumph of tobacco, against the use of which more than a hundred fulminating volumes issued from the press within a few years.

2. These observations suggest a reference to the question, how far tobacco was intended for the use of man? The practice of the Cuban savages is seized by one party as a proof of a final cause, insomuch as savages are supposed to follow the first dictates of nature; and then comes the other party, who point to the tardy adoption of nature's gift by a civilized people as a clear proof that the weed was not intended for the uses to which it is applied. I believe that it is utterly vain to discuss questions of this kind. We have no elements for a proper judgment. Perhaps, for aught we know, the American savages were some thousands of years in coming to the habit—at least we have no reason to suppose that it could be a very primitive adoption. Whether, indeed, man's custom, in most cases, is a proof of itself of nature's intention, must always be a puzzle; but as we know that many very bad things are greatly more natural to human beings than we would wish them to be, we have just as good a right to say for those to whom good tendencies are delightful from the beginning, that nature intended they should do their best to eradicate what is hurtful, and reclaim their fellow-creatures from the indulgences of vice. The true practical question must in short always be, what is beneficial and what is hurtful, according to the results of our experience.

3. The botany of our subject presents us with seven or eight different species of the plant, all affecting, more or less, the warm latitudes. Virginia seems, of all regions, the best suited to its culture, and yields in great quantity the common or Virginian tobacco (*Nicotiana*

tabacum). A more hardy kind (*N. rustica*), may be cultivated in such latitudes as that of Scotland. This is the species which has been found in Europe, Asia, and Africa; and were it not for the restriction imposed by statute, we would produce it on rich soils in greater quantities than would be convenient for our treasury, or beneficial to our people. I need hardly say here, that the question of intention, on the part of nature, is not much helped by the *habitat* of the production used; otherwise we might expect to find the northern races less addicted to the use of this tropical weed than those of the warmer regions. We know that probably the contrary is the truth; but all our efforts to draw any conclusion for or against the adaptation of a race to a production of a climate, are rendered futile by the teachings, not more of our religion, than of naturalists, who insist for a central point of origin for all races, and a constitution suited to all climates. The safest position to hold, is that for which I insist, that a bad habit may be formed in any latitude, and supported by any number of arguments, where the wish still holds its mysterious power over the conclusions of what we call reason.

4. As regards the composition of tobacco, we have endless experiments in that nearly new science, Organic Chemistry, which seems to try the patience of industry itself. There are some nine or ten different substances which go to the formation of a tobacco leaf, and these seem to change in their proportions according to the condition of the plant. Setting aside starch, various acids and salts, we come to what may be termed the

essential element or principle called Nicotina, with the formula $C^{10}H^{14}N^2$. These proportions of carbon, hydrogen, and azote, really tell to the analyst nothing from which he could predicate any thing certain as to the character of the compound. In this respect, all the formulæ of organic substances are nearly under the same mystery; a small difference in the proportions producing the greatest difference in the combined results. But we can be under no mistake as to the character of the element which is called Nicotina—a colorless liquid alkaloid, with an acrid, burning taste. It is one of the most intense of all poisons, approaching in its activity the strongest preparation of prussic acid.

5. The other important element procured from the analysis of tobacco, is an oil called nicotianin, supposed to be “the juice of cursed hebanon” referred to in Hamlet; this is the poet’s formula; the chemist’s is $C^{11}H^{10}O^2$; but if the latter did not know from actual experience the deadly power of the substance, he would have a small chance of arriving at it by any analogy between formulæ. As this oily substance is also a very intense poison, differing essentially from the alkaloid, and indeed it is supposed capable of acting on different vital organs, we have thus in tobacco two poisons—rather a remarkable fact in organic chemistry, where we find, generally, only one very active principle at the base of any particular production in the vegetable kingdom. It is indeed asserted by Landerer, that there is none of this deadly oil in the fresh leaves of tobacco; and Mr. Pereira remarks, that the substance must be developed in the drying of the leaves under the influ-

ence of air and water. The discovery, if true, may free the weed from the charge of possessing a double poison ; but the consequence is all the same to the foreign consumer, who never sees the leaf in its green state.

6. It has been said that the smoke of tobacco, as analysed by Zeise and others, contains nothing of the deadly alkaloid, and tobacco smokers have pleaded for less detrimental effects from the pipe or cigar than from the quid ; but I fear their conclusion is not very tenable, for the detrimental oil, as we in fact see from the pipe itself, is largely increased by the continued roasting and burning. We know, too, that the old pipe is a favorite with the epicures ; the more oil by which it is blackened the better becomes the instrument, till it attains perfection as a mass of clay soaked with poison, and dried, and soaked and dried a hundred times, so that the entire matter is imbued with the absorption. See Dr Waller Lewis's recommendation to the gentlemen of the London Post-Office, at page 137. The chewer takes less of the oil, but more of the alkaloid ; the smoker less of the alkaloid, but more of the oil ; the comparison is simply a balance of evils, which is odious to either set of debauchees, and some get quit of the invidious comparison by taking the drug in both forms—a refuge from scientific doubt compensating for the greater amount of destruction to health and comfort. But if we are to believe Dr. Morries, the nicotianin is not destitute of a portion of the alkaloid ; and as we know that the inhaled smoke is largely infected with the oil of an old pipe, the smoker has less to say for his habit than the chewer will concede ; and I fairly admit, that it does

not appear to me to be at all clear, that the former has any advantage over the latter in other respects; for while the smoker's account must be debited with the topical diseases, chiefly carcinomatous, from which the chewer is to a great extent free, he consumes a far greater portion of the weed than his competing debauchee—a surplus so great, in the confirmed cigar smoker, that we are often called upon for a surprise at the number of these small rolls which constitute his daily supply.

7. Turning to the main part of our subject, the physiological effects, we find that, in the carnivora, tobacco shows its power in a very striking manner, causing vomiting, purging, universal trembling, staggering, convulsions, and stupor. Physiologists are not at one in regard to the peculiar mode of action; the nerves are probably the principal medium; but the many instances we have on record, of death produced by an application of small quantities to wounds, would indicate that the process is more complex. There is an ingenious experiment reported, where the effect of tobacco was noticed in an animal whose head was cut off, and artificial respiration kept up. The tobacco did not, as in the ordinary case, paralyse the heart; and the conclusion is accordingly drawn, that it is through the medium of the brain that the death action is exercised on that organ. But the whole of this question is rendered dubious or difficult by other facts. For instance, there is a difference of action between the alkaloid and the oil; the latter of which is said not to possess the power of paralyzing the heart. Applied to the tongue of a cat, one drop of the oil caused convulsions, and in two minutes death,

without for some time affecting much the action of the heart; so that, in this respect, it operates very much in the manner of prussic acid.

8. On man, the physiological effects have been very minutely observed. I cannot do better than give the words of Mr. Pereira: "In small doses, tobacco causes a sensation of heat in the throat, and sometimes a feeling of warmth at the stomach. These effects are, however, less obvious when the remedy is taken in a liquid form, and largely diluted. By repetition, it usually operates as a diuretic, and less frequently as a laxative. Accompanying these effects are often nausea, and a peculiar feeling, usually described as giddiness, scarcely according with the ordinary acceptance of this form. As dropsical swellings sometimes disappear under the operation of these doses, it has been inferred that the remedy promotes the operation of the absorbents. In larger doses it promotes nausea, vomiting, and purging: though it seldom gives rise to abdominal pain, it produces a most distressing sensation of sinking at the pit of the stomach. It occasionally acts as an anodyne, or more rarely promotes sleep. But its most remarkable effects are languor, feebleness, relaxation of muscles, trembling of the limbs, great anxiety, and tendency to faint. Vision is frequently enfeebled, the ideas confused, the pulse small and weak, the respiration somewhat laborious, the surface cold and clammy, or bathed in a cold sweat, and, in extreme cases, convulsive movements are observed. In excessive doses, the effects are of the same kind, but more violent in degree. The more prominent symptoms are nausea, vomiting, and in

some cases purging, extreme weakness, and relaxation of the muscles, depression of the vascular system (manifested by feeble pulse, pale face, cold sweats, and tendency to faint), convulsive movements, followed by paralysis, and a kind of torpor terminating in death."

9. As an accompaniment to these physiological effects, I may here give an extract from the newly published pamphlet by Monsieur Fiévée, showing the mental or moral effects of this deleterious agent.

"We do not insist principally on the material disasters resulting from tobacco, knowing very well that any reasoning on this subject will not produce conviction. A danger of far greater interest to those concerned in the preservation of the individual, is the enfeeblement of the human mind, the loss of the powers of intelligence and of moral energy; in a word, of the vigor of the intellect, one of the elements of which is memory. We are much deceived, if the statistics of actual mental vigor would not prove the low level of the intellect throughout Europe since the introduction of tobacco. The Spaniards have first experienced the penalty of its abuse, the example of which they have so industriously propagated, and the elements of which originated in their conquests and their ancient energy. The rich Havanna enjoys the monopoly of the poison which procures so much gold in return for so many victims; but the Spaniards have paid for it also by the loss of their political importance, of their rich appanage of art and literature, of their chivalry, which made them one of the first people of the world. Admitting that other causes operated, tobacco has been one of the most influ-

ential. Spain is now a vast tobacco shop, and its only consolation is, that other nations are fast approaching to its level. Tobacco, as the great flatterer of sensuality, is one of the most energetic promoters of individualism—that is, of a weakening of social ties. Its appearance coincides fatally with reform and the spirit of inquiry. Man inaugurates the introduction of logic in matters inaccessible, at the same time that, as Montaigne says, he gives way to a habit destructive of the faculty of ratiocination—a contradiction which shows us that necessity of defect by which he is tormented.”

My own experience confirms much of this, but a more particular physiological account will be found in my *Practical Observations*. The reader will find a very interesting paper by Dr. Alfred Swaine Taylor, in *Guy's Hospital Reports*, Vol. IV., p. 345.

CHAPTER II.

PRACTICAL OBSERVATIONS ON THE USE AND ABUSE
OF TOBACCO.

10. ALTHOUGH for a considerable time past I had collected many important facts regarding the Use and Abuse of Tobacco, the publication of these Practical Observations has nevertheless been in some measure accelerated by the perusal of a paper by Professor Sigmund of Vienna, "Upon Syphilitic Contagion from Cigar Smoking," which appeared in the *Medical Times and Gazette*, under "Selections from Foreign Journals." From the brief statement there given, it is difficult to decide what opinion Dr. Sigmund entertains on the subject—whether he considers that the tobacco generates the syphilitic ulceration of the lips, tonsils, and gums; or that the cigar is impregnated with the venereal virus, through the medium of the manufacturer of it.

11. Many cases of syphilitic virus, introduced into the healthy constitution, by smoking a cigar or pipe used by a diseased person, have come under my notice. The practice is by no means uncommon, in some ranks of life, for two individuals to smoke the same pipe or cigar alternately, the one taking a puff, or *draw*, after the other, and in this way the morbid poison produces a similar effect to what is exemplified in the communica-

tion of jaws or sibbens, by drinking out of an infected cup or vessel. I have often been consulted by gentlemen having marked syphilitic ulcerated throat, which they could not account for, having had no primary symptoms on the genitals. On interrogating them, they have admitted lighting a pipe used by another, or having accepted a puff of a friend's cigar. Some patients have presented themselves with syphilitic ulceration on the lower or upper lip, or the commissure between them having a thickened base. Some have had syphilitic ulcers of the mucous membrane of the cheeks, tongue, and tonsils. A few have had, with the preceding ulcers, secondary eruption of the skin and loose hair: while others have been affected with secondary condylomata. I once witnessed an operation performed upon a woman with syphilitic ulcer of the lower lip, combined with a hardened base, produced by smoking a pipe of a syphilitic patient. Excision of the diseased mass was resorted to by the operator, a man of great experience and dexterity, mistaking the affection for carcinoma. In a few weeks after the operation, the secondary syphilitic eruption manifested itself, and was cured by the hydriodate of potass. It is scarcely possible to heal a syphilitic sore, or to unite a fractured bone, in a devoted smoker — his constitution seems to be in the same vitiated state as in one affected with scurvy.

12. A writer on tobacco describes Paris, in its relation to smoking, thus: "In Paris," says he, "it is impossible to walk in the streets without being constantly exposed to receive into the mouth, and consequently to inhale, the fumes of tobacco from so many mouths, clean and

unclean, passing before and behind, to the great annoyance, and indeed injury to the health of every one, and most disgusting to those cognizant of its poisonous effects. In the arcades and passages it is particularly offensive and obnoxious, the atmosphere of those close places being always contaminated by the pestilential exhalations. I may add, this must be still more so the case in the smoking-rooms of our clubs. And I may here put a query — May not the fumes of tobacco, exhaled from a smoker laboring under syphilitic sore throat and mouth, be inhaled by a clean, healthy individual, with an abraded or ulcerated lip, and the former contaminate the latter? I have seen syphilitic ulceration of the lip, the chin, the mouth, and the throat, individually and collectively, where no trace whatever could be brought to bear on how the ulcers were caused. How often does syphilitic onychia occur without our being able to discover any contamination?"

13. A remarkable change occurs to the excessive smoker, when he labors under influenza or fever, as he then not only loses all relish for the cigar or pipe, but even actually loathes them. Does not this important fact satisfactorily show, that the *furor tabaci* depends on the morbid condition produced on the salivary secretion and organ of taste by the deleterious drug, and at the same time illustrate the pathological law, that two morbid states seldom or ever co-exist in the same individual? The sudden removal of all desire to smoke, affords the best refutation to the delusive representations which the unhappy tobacco victim urges for continuing the injurious habit, on the ground, that its abandonment would

be prejudicial to his health, and proves, if he had a *will* to relinquish the pipe or cigar, he would find a *way*. The best argument to use in dealing with the obstinate prejudices of such people, is to tell them, that an *accidental* attack of a new disease can *safely and at once* occasion the total withdrawal of tobacco without producing any bad consequences. It is scarcely possible to cure either syphilis or gonorrhœa, if the patient continue to indulge in smoking tobacco.

14. When tobacco is too much indulged in, it produces, both locally and constitutionally, the most dire effects. Locally, smoking causes ulceration of the lips, tongue,* gums, mucous membrane of the mouth or cheeks, tonsils, velum, and even pharynx. Many, from smoking, produce carcinomatous ulceration of the lower or upper lip, or its commissure, requiring excision of the diseased structure. One individual, a captain of the Indian navy, fell a victim under my care (from smoking Cherouts). When I first saw him, he had ulceration of the mucous membrane of his left cheek, extending backwards to the tonsil and pharynx of the same side, having all the characteristic appearances of carcinoma. The disease resisted every variety of treatment. Internally—alteratives and mild diet; externally—fomentations, poultices, a solution of honey and water, and nitric acid. From this case, and other instances, it would appear that the cigar induces carcinoma just as readily as the *cutty-pipe*. It would seem that the pungent oil of the tobacco, combined with the heat, constitutes the ex-

* See Chapter III., p. 132.

citing cause. The ulceration of the lips, especially the lower, so closely resembles syphilis, that it requires great care and examination to distinguish it. If there be no carcinomatous condition of the ulcerated surface of the lips, mouth, or throat, rinsing the mouth with a solution of honey (a teaspoonful in a tumbler of warm water) three or four times a day, prescribing an alterative powder of the bicarbonate of soda $\mathfrak{D}\text{ji}$, rhubarb gr^{ss} , columba gr^{ss} , twice a day; a blue pill once a week; light diet, as the farinaceous, with occasionally fowl or veal; confinement to a large, well-ventilated room; and the rigid abstinence of the pernicious weed, will generally soon effect a cure. In some, it may be necessary to touch the ulcerated surface with nitric acid every fourth or fifth day.

15. Devoted smokers as pertinaciously insist, that they cannot give up such a luxury, as the drunkard affirms that he cannot relinquish his stimulus. But I have known instances in both classes of individuals manfully giving them up. There is an officer in Her Majesty's service who had upwards of ten severe attacks of delirium tremens, and is now a teetotaller; and he has been so for upwards of fifteen years.

16. The following case, from the *Half-Yearly Abstract of the Medical Sciences*, for January onwards to July, 1854, page 70, satisfactorily shows that tobacco can be given up. It is likewise a terrible illustration of its baneful effects on the constitution. Drs. Rankin and Radcliffe, the editors, head it, "*A case of Angina Pectoris resulting from the Use of Tobacco*," and thus introduce it: "The following case possesses a very high

degree of interest." The history of the case is thus related by Dr. Corson, of New York:

"A highly intelligent man, aged sixty-five, stout, ruddy, early married, temperate, managing a large business, after premising that he commenced chewing tobacco at seventeen, swallowing the juice, as is sometimes customary, to prevent injuring his lungs from constant spitting, and that years after he suffered from a gnawing, capricious appetite, nausea, vomiting of meals, emaciation, nervousness, and *palpitation of the heart*, dictated to Dr. Corson, recently, the following story:

"Seven years thus miserably passed, when, one day after dinner, I was suddenly seized with intense pain in the chest, gasping for breath, and a sensation as if *a crowbar were pressed tightly from the right breast to the left, till it came and twisted in a knot round the heart, which now stopped deathly still for a minute, and then leaped like a dozen frogs*. After two hours of death-like suffering, the attack ceased; and I found that ever after my heart *missed every fourth beat*. My physician said that I had organic disease of the heart, must die suddenly, and need only take a little brandy for the painful paroxysms; and I soon found it the only thing that gave them any relief. For the next twenty-seven years I continued to suffer milder attacks like the above, lasting from one to several minutes, sometimes as often as two or three times a day or night; and to be sickly looking, thin, and pale as a ghost. Simply from revolting at the idea of being a slave to *one vile habit alone*, and without dreaming of the suffering it had cost me,

after *thirty-three years'* use, I one day threw away tobacco forever.

“ ‘ Words cannot describe my suffering and desire for a time. I was reminded of the Indian, who, next to all the rum in the world, wanted all the tobacco. But my firm will conquered. In a month my paroxysms nearly ceased, and soon after left entirely. I was directly a new man, and grew stout and hale as you see. With the exception of a little asthmatic breathing, in close rooms and the like, for nearly twenty years since I have enjoyed excellent health.’ ”

On examination, Dr. Corson found the heart seemingly healthy in size and structure, only *irregular*, intermitting still at every fourth pulsation.

17. After such well-marked examples of manly firmness, no one need pretend to affirm that the luxury of smoking, snuffing, plugging, or chewing, or quidding, cannot be given up; or that the stimulus of wine, or spirits, or malt liquors, cannot be relinquished. I may here remark, that chewing or quidding does not seem to irritate the mucous membrane of the mouth to the extent that smoking does; it never causes ulceration.

18. Some of the constitutional effects of tobacco have been already detailed under Dr. Corson's case. But I shall commence their enumeration by generally stating, that they are numerous and varied, consisting of giddiness, sickness, vomiting, dyspepsia, vitiated taste of the mouth, loose bowels, diseased liver, congestion of the brain, apoplexy, palsy, mania, loss of memory, amaurosis, deafness, nervousness, emasculation, and cowardice.

19. When a youth commences his apprenticeship to

smoking tobacco, he suffers often the most inconceivably miserable sickness and vomiting—almost as bad as sea-sickness. It generally produces these effects so rapidly, that their production must entirely depend upon nervous influence, as giddiness is almost immediately induced. The antidote or cure for this miserable condition is drinking strong coffee, or brandy and water, and retiring to bed or sofa. If he perseveres, he has just to suffer onwards, until his nervous system becomes habituated to the noxious weed, and too often to the bottle at the same time. It is truly melancholy to witness the great number of the young who smoke now-a-days; and it is painful to contemplate how many promising youths must be stunted in their growth, and enfeebled in their minds, before they arrive at manhood.

20. "Let the young adept," says Boussiron, in his interesting Treatise on Tobacco, "whom you wish to form by your lessons, smoke the leaves of tobacco, thorn-apple, or deadly night-shade, and you may be certain to see take place the effects nearly identical in violence—giddiness, intoxication, disturbed vision, nausea, vomiting, and frequently diarrhœa."

21. Dyspepsia from the use of tobacco is accompanied with the same symptoms as when the disease is produced by drinking or gluttony, and want of exercise in the open air. The only cure is, by "*throwing away tobacco for ever*"—and this will be accelerated by a blue pill once a week, the alterative powder morning and evening, prescribed under ulceration of the mouth, the infusion of quassia, or quassia and gentian combined, mild nutritious diet, as coffee or tea, with lightly toasted bread,

beef-tea with or without rice, or toast for three or four days, a glass or two of sherry wine, and exercise in the open air, either on foot or horseback, or carriage, or still better, all combined. Exercise should be taken before meals, and the patient lounge on a sofa for two or three hours after meals. Change of air, fully fifty or one hundred miles distant, is of great benefit. After three or four days, beef-steak or mutton-chop should supersede the beef-tea, and then a few vegetables, well boiled, may be taken. A few drops of the balsam of copaiba, say eight or ten drops combined, with ten of aquæ potassæ, and a teaspoonful of sweet nitre, in half a cup of cold water sweetened, and taken at bed-time, has a most soothing effect. Frank's Specific is the most elegant and agreeable preparation of copaiba, even preferable to the capsules. There is an imitation of Frank's Specific prepared by the chemists of London.

22. The vitiated taste of the mouth is generally a symptom of dyspepsia, and is to be cured in the same way.

23. The looseness of the bowels is to be treated by "*throwing away tobacco for ever*;" by prescribing an astringent mixture of the electuary of catechu, prepared chalk, syrup of ginger and laudanum; by farinaceous and milk diet for eight days, with rest in bed for four or five days, then for the same time on a sofa. At the end of eight or ten days, beef soup with rice, or lightly toasted bread, puddings of rice, sago, and arrow root, for four or five days. Then beef-steak or mutton-chop, with rice, lightly toasted bread, and a glass or two of port wine,

nade into negus or mulled. Exercise in the open air should now be freely taken.

24. During the prevalence of cholera, I have had repeated opportunities of observing, that individuals addicted to the use of tobacco, especially those who snuff it, are more disposed to attacks of that disease, and generally in its most malignant and fatal form.*

25. Disease of the liver seems to be caused by the tobacco exciting the system, and by the dyspeptic symptoms produced. It is to be treated by "*throwing away tobacco for ever*;" by prescribing half a grain of the protoioduret of mercury, with or without opium, according to the state of the bowels, made into a pill with the extract of gentian, morning and evening; by an infusion of quassia, or quassia and gentian combined; by blistering over the region of the liver, and dressing the tender surface with mercurial ointment. In some cases it is necessary to keep a portion of the blistered surface open for some time. In the commencement, rest, and farinaceous and milk diet. Afterwards, exercise in the open air, beef-tea with rice, or lightly toasted bread, for a few days; and then beef-steak or mutton-chop, and a glass or two of sherry. If the protoioduret threatens to affect the mouth, it should be given up, and the same with the mercurial dressing of the blistered surface. Dr. Scott of India's foot-bath of nitro-muriatic acid is often beneficial. When convalescent, nothing is so beneficial as change of air.

26. Congestion of the brain occurs almost only in

* See Fenn's cases, p. 66.

those much addicted to smoking, in whom a cigar is never out of the mouth; but I have witnessed it also to occur in the snuffer of the plant. It is denoted by headache, want of sleep, or rather restless nights, and occasionally flushing of the countenance. The worst case I have had under my care was a foreigner, who travelled for a manufacturer of cigars — he was at the same time fearfully nervous. He had a red, swollen countenance, as if he combined the bottle with his smoking, but this he assured me he never did — the tobacco was enough for him. I inserted an issue or seton in the nape of his neck, purged him with calomel and aloes, put him on as low a diet as he would permit, confined him to the house, and entreated him to smoke as few cigars as possible. In a fortnight the congestion of the brain was subdued, and then he was allowed gradually more and more nourishing diet and exercise in the open air. He returned to Edinburgh in two years after in good health but still nervous even from the moderate use of cigars. He said that he had tried to give them up altogether, but that he had found that impracticable — a difficulty connected, no doubt, with his avocation.

27. Apoplexy has been taken notice of by several authors, supervening to the smoking of tobacco: also to the immoderate use of snuff, as related by Morgagni; likewise in the *Ephemerides des Curieux de la Nature*, and in the *Journal d'Allemagne* for 1830, page 179. The treatment here is the same as that for congestion of the brain.

28. The form of palsy produced by excessive smoking is generally hemiplegia, and it is almost always incurable.

ble. It follows as often from too much snuffing as too much smoking. The treatment consists in "*throwing away tobacco for ever*," inserting setons in the lumbar region, tonics, cold bathing, and good diet.

29. Mania is a fearful result of the excessive use of tobacco—two cases of which I have witnessed since the publication of this treatise. I have also to mention, that a gentleman called on me, and thanked me for the publication of my Observations on Tobacco, and related to me, with deep emotion, what had occurred in his own family from smoking tobacco. Two amiable younger brothers had gone deranged, and committed suicide. There is no hereditary predisposition to mania in the family. At a meeting of the Medical and Chirurgical Society of London, on May 2d, 1854, a paper was read, entitled, "Additional Remarks on the Statistics and Morbid Anatomy of Mental Diseases," by Dr. Webster, wherein he cites, among the causes, the great use of tobacco, which opinion he supported by reference to the statistics of insanity in Germany.

30. Loss of memory takes place in an extraordinary degree in the smoker, much more so than in the drunkard, evidently from tobacco acting more on the brain than alcohol. The cure consists in "*throwing away tobacco for ever*."

31. Amaurosis is a very common result of smoking tobacco to excess; but I have never seen it produced by snuffing or chewing. It occurs with or without congestion of the brain. It is commonly confined to one eye. It is generally curable, but not always, by "*throwing away tobacco for ever*"—by inserting a seton in the

back of the neck, another seton in the temple or temples, according as one or both eyes are affected. In the course of eight or ten days, the seton in the temple is to be withdrawn, a common fly blister applied, and the blistered surface sprinkled with strychnia. The bowels to be freely opened with calomel and aloes. The diet to be light, as the farinaceous. The patient should be confined in a large, well-ventilated apartment, and an obscure light.

32. Deafness is not so common a sequence to smoking tobacco as amaurosis. It is to be treated on precisely the same principles, with the difference of applying the blisters and strychnia behind the ears.

33. Nervousness is remarkably common from indulging too much in smoking, snuffing, or chewing tobacco. It is to be treated by "*throwing away tobacco forever*" — by having recourse to the shower-bath in winter, and sea-bathing in summer — by nourishing diet, attention to the bowels, the alterative powder, as prescribed under ulceration of the lips, the tonics, as quassia and gentian, and even quinine; exercise in the open air, and by mixing in quiet, agreeable society, as the nervous system is easily and readily over-excited; and, lastly, by change of air, and ultimately travelling about.

34. Emasculation, as an effect of tobacco, may well astonish the gay Lothario, as he might, unconscious of the cause, have boasted, that "*never in my youth did I apply the means of weakness and debility.*" I have been consulted by fathers of from thirty to forty years of age, who, having married in early life, have had two or three children soon after marriage onwards to thirty

years old, but have been surprised that they had even tually lost all inclination for sexual indulgence. On interrogating them, I have invariably found that they were all excessive smokers; and on convincing them that tobacco was the cause of their temporary impotence, they have instantly "*thrown away tobacco forever*," and in a few months after have returned to me, saying that they had become fathers again. I have found unmarried men similarly affected with the want of the sexual *vis et animus*.

35. I have invariably found, that patients addicted to tobacco smoking were in spirit cowardly, and deficient in manly fortitude to undergo any surgical operation, however trifling, proposed to relieve them from the suffering of other complaints. In such cases chloroform is a great boon.

36. When we consider the effect of tobacco in tetanus, and in strangulated hernia in former days, we can readily comprehend its powerful narcotic effects: they are stronger than opium—opium differing from tobacco only in constipating the bowels. The use of tobacco for medical purposes has been long known, but its application has been carried, *fundamentally*, of late, to the full extent to which the human body can be subjected—a cigar having been actually inserted into the anus, by an American physician, as a medical reagent—thus introducing the poison into every vital passage.

37. The number of people who from twelve years of age are given to smoking, snuffing, plugging, and chewing, or quidding the noxious weed, appears quite incredible. By its so general consumption, we must become

changed in both corporeal and mental faculties—we cannot fail to be enfeebled in body and mind, and become a deteriorated race. I once travelled with a gentleman from South America, who first filled his nostrils with snuff, which he prevented falling out, by stuffing shag tobacco after it, and this he termed “plugging”—then put in each cheek a coil of pigtail tobacco, which he named “quidding,” in this country called “chewing:” lastly, he lit a Havannah cigar, which he put into his mouth; and thus smoked and chewed, puffing at one time the smoke of the cigar, and at another time squirting the juice from his mouth, as so graphically described by Dickens in the boat story, on the way to the Far West. This gentleman was as thin as a razor, with an olive-colored countenance, and frightfully nervous. The preceding is neither a caricature, nor an exaggerated account of the fearful extent to which the use of tobacco is carried—not merely in Europe, as we know, but, as there is every reason to fear, in every quarter of the globe where it either grows, or is unhappily conveyed.

38. There can be no doubt, from what has occurred in the war just ended, that had the Turks never indulged in the vicious habit of smoking tobacco, they would not have required the assistance of the French, Sardinians, and British. They would have been as powerful as in the days of the Sultans Othman, Orchan, Amurath the First, and Bajazet, and would have sent such a message through Menschikoff to the Czar Nicholas, as the Sultan Bajazet said to the Count de Nevers, of France, when taken prisoner after his celebrated unsuccessful cavalry charge (like that at Balaklava) near Nicropolis.

39 It is allowed by British and other European officers, that the Turkish soldier is equal, if not superior, to the private soldier of any other European nation.* But the officers are ignorant, lazy, and indolent, constantly stupefied with tobacco. The late expedition of Omer Pacha from Batoun to Kutais, is graphically described by one of the correspondents of an English journal: while the private soldiers were toiling away in dragging the artillery through forests, their officers were *squatted*, smoking their pipes or chibouques!

40. It is stated that Abbas the First, Shah of Persia in the beginning of the seventeenth century (he reigned from 1587 to 1629), denounced opium and tobacco; and that, when leading an army against the Cham of Tartary, he proclaimed that every soldier in whose possession tobacco was found, would have his nose and lips cut off, and afterwards be burnt alive. He re-established the Persian empire by his activity and conquests.

41. Amurath the Fourth, of Turkey, denounced the use of tobacco. He ended his reign in 1389.

42. The manner of the embodiment of the Janizaries, and especially their training for soldiers by their founder Ala-ed-deen, the brother of the Sultan Orchan, is well worth the consideration of the Secretary-at-War, the Commander-in-Chief, the Horse-Guards, and, more particularly, of the Army Reform Commissioners.

43. "The Mahrattas, in working a battery, never pointed their cannon so as to mark in a particular spot,

* *Vide* Le Continent, in 1854. Paris, 1854. Also, General Williams's (the brave defender of Kars) Speech at the Army and Navy Club, June, 1856.

but aimed at random all round the wall. After loading a gun they sat down, smoked and conversed for half-an-hour; then fired, reloaded, and resumed their conversation. Two hours at mid-day, by mutual consent, were set apart for meals and recreation." "The English calculated seven years as the period in which a breach might be effected."*

44. It is stated that the Sikhs, now named the Punjabees, never smoke tobacco; it being contrary to their religion. I may ask, are there any soldiers in India equal to the Sikhs? At Chillianwallah, at Moodkee, at Ferozshah, at Aliwur, at Mooltan, at Sobraon, no soldiers behaved better.

45. Mr. Meadows, in an interesting account of the Chinese, states, that "the soldier who smokes tobacco is bamboozed, and he who smokes opium is beheaded."—*Vide British Quarterly Review*, No. 51, for July, 1857, page 49.

46. Rumph, in his *Herbarium Amboinense*, says, that the Chinese and natives of India used tobacco only as a medicine or medicament. "Neutiquam," he observes, "verę ad suctionem sed tantum modo ad usum medicum unanimo enim consensu, Indi assentiunt sese Tabaci suctionem ab Europeis dedicisse."

47. The celebrated French surgeon, Percy, states, that tobacco was as regularly served out to the French soldiers as provisions, and thus comments on the practice: "It had doubtless been calculated that smoking hurt the appetite; and to save daily from four to six

* Murray's *British India*, vol. ii. p. 127. The author here alludes to the siege of Darwar, occupied by Tippoc in September, 1791.

ounces of bread per man, they furnished him with three farthings' worth of bad tobacco. During the conquest of Holland, Louvois paid more attention to furnishing tobacco than provisions; and even at this day, as well as in former times, more care is taken to procure tobacco than bread to the soldier. Every soldier was obliged to have his pipe and his match."

48. Constant relates the following anecdote of the great Napoleon: "Napoleon," says he, "once took a fancy to smoke, for the purpose of trying a very fine oriental pipe presented to him by a Turkish or Persian ambassador. Preparation having been made—the fire having been applied to the recipient—nothing more was to be done than to communicate it to the tobacco, but that could never be effected in the way taken by his majesty for that purpose. He contented himself with opening and shutting his mouth alternately, without the least in the world drawing in his breath. 'How the devil,' cried he at last—'that does nothing!' I made him observe, that he made the attempt badly, and showed him the proper mode of doing it. But the emperor always returned to his kind of yawning. Wearied by his vain attempts, he at last desired me to light the pipe. I obeyed, and returned it to him in order. But scarcely had he drawn in a mouthful, when the smoke, which he knew not how to expel from his mouth, turned back into his palate, penetrated into his throat, and came out by the nose and blinded him. As soon as he recovered breath—'Take that away from me—what abomination! Oh, the swine!—my stomach turns!' In fact, he felt himself so annoyed for at least an hour, that he renounced

for ever the pleasure of a habit which he said was only fit to amuse sluggards."

49. The students attending the American colleges are said to destroy their physical and moral powers by smoking tobacco, so as to unfit them to prosecute their studies, and afterwards to become useful members of society. But we have even the judges on the bench *quidding* tobacco, as well as the members of parliament, so facetiously described by Dickens in his American Notes for general circulation, wherein he terms Washington the head-quarters of tobacco-tinctured saliva. Dr. Budget, in his treatise on tobacco, states, that in America, "it is no uncommon circumstance to hear of inquests on the bodies of smokers, especially youths; the ordinary verdict being, 'died from extreme tobacco smoking.'"

50. "The pupils of the Polytechnic School in Paris have recently furnished some curious statistics bearing on the tobacco controversy. Dividing the young gentlemen of that college into two groups—the smokers and non-smokers—it is shown that the smokers have shown themselves in the various competitive examinations far inferior to the others. Not only in the examinations on entering the school are the smokers in a lower rank; but in the various ordeals that they have to pass through in a year, the average rank of the smokers had constantly fallen, and not inconsiderably, while the men who did not smoke enjoyed a cerebral atmosphere of the clearest kind."—*From the Globe, also the Dublin Medical Press.*

51. Excessive smoking has had no small share in the

degeneration of Spain. A Spaniard is never without a cigar in his mouth. It was observed during the Peninsular war, that the Spanish officers passed the whole day in smoking, in cutting and mincing tobacco to make paper cigars, and in eating and sleeping — and never existed men sunk in such idleness, indolence, and apathy. I am sorry to add, that the Portuguese were in the same degraded condition. Germany is said to be as immersed in tobacco as Spain. And I fear we are fast drifting into the same degraded condition. Fenelon says, "Youth is the flower of a nation; it is in the flower that the fruit should be cultivated." Condorcet, on the progress of the human mind, thus concludes: "Such is the practice of using fermented liquors, hot drinks, opium,* and tobacco, that men have sought with a kind

* The author of "Confessions of an English Opium Eater," states, that the number of *amateur* opium-eaters in London is immense. And in Manchester, the work people of the cotton manufactories are rapidly getting into the practice of opium-eating. In the Nineteenth Report of the Inspectors of Prisons in the Northern and Eastern Districts of England, it is stated that, in the district of Wisbeach, "opium-eating is very prevalent in this district, and the use of the drug is *often apparent* in its effects on the *morals and intellects of the prisoners.*" The Rev. A. S. Thelwall, in his interesting work on "The Iniquities of the Opium Trade with China," gives a deplorable account of the destructive effect on the health of the Chinese who indulge in it. He gives a translation of a memorial to the Emperor, by Choo Tsun, a member of Council, &c. "In the history of Formosa," says he, "we find the following passage: Opium was first produced in Kaoutsinne, which by some is said to be the same as Kalapa or Batavia. The natives of this place were, at the first, sprightly and active, and, being good soldiers, were always successful in battle. But the people called Hung-maou (red-haired,) came thither, and having manufactured opium, seduced some of the natives

of frenzy, means of procuring sensations which may be continually renewed. There are few nations among whom these practices are not observed, from which is derived a pleasure that occupies whole days, or is repeated at every interval, that prevents the weight of time from being felt, satisfies the necessity of having the faculties roused, and at last blunting the edge of

into the habit of smoking it. From these the mania for it spread rapidly throughout the whole nation; so that in process of time the natives became feeble and enervated, submitted to foreign rule, and ultimately were completely subjugated. Now the English," continues he, "are of the race of foreigners called Hung-maou. In introducing opium into this country, their purpose has been to weaken and enfeeble the Central Empire. If not early aroused to a sense of our danger, we shall find ourselves ere long on the last step towards ruin." "It thus appears," concludes Choo Tsun, "it is beyond the power of any artificial means to save a people enervated by luxury." In the same memorial, Choo Tsun thus observes: "While the stream of importation of opium is not turned aside, it is impossible to attain any certainty that none within the camp do ever secretly inhale the drug. And if the camp be once contaminated by it, the baneful influence will work its way, and the habit will be contracted beyond the power of reform. When the periodical times of desire for it come round, how can the victims (*their legs tottering, their hands trembling, their eyes flowing with child-like tears,*) be able in any way to attend to their proper exercise? Or how can such men form strong and powerful legions? Under these circumstances, the military will become alike unfit to the fight, or in a retreat to defend their posts. Of this there is a clear proof in the instance of the campaign against the Yau rebels in 1832. In the army sent to Lëenchow on that occasion, great numbers of the soldiers were opium-smokers; so that, although their numerical force was large, there was hardly any strength to be found among them." If the smoking of opium produces such direful effects, why should not tobacco? They are both narcotics, nay, tobacco is the more potent narcotic or poison,

this necessity, thus prolongs the duration of the infancy and inactivity of the human mind. These practices, which have proved an obstacle to the progress of ignorant and enslaved nations, produce also their effects in wise and more civilized countries, preventing truth from diffusing, through all degrees of men, a pure and equal light."

52. While investigating the baneful influence of tobacco, I have been led to consider the effects of brandy and other stimulants on the courage of the soldier, during the last Russian war. It appears to me, that the Russians lost their different battles in the Crimea chiefly from having served out to them too much brandy or raki, immediately before entering into action. This was especially remarked after the battle of Inkermann. That extraordinarily intelligent soldier, Philip O'Flaherty, in his *Sketches of the War*, thus observes, after the battle of Inkermann: "We took a good many prisoners who were half-drunk. It appears that the authorities supplied the men *plentifully* with liquor, in order that they might fight well. The Russians had a great many killed and wounded. The hills were strewn with them." This intoxicated condition of the Russians is also described in several letters from the camp. Even our own troops, about the conclusion of the war, were becoming excessively addicted to drinking. It may be said that the Russians, besides their prodigal allowance of raki, were often led into action after long forced marches, and in an ill-fed condition. Nevertheless, the over-dose of raki would, in my estimation, detract from their powers of endurance, instead of prolonging them.

53. Our prize-fighters are not allowed stimulants or tobacco, either during the time of their training, or on the day of their battle—not even during their fighting. The training of the prize-fighter, with some modification, appears admirably adapted to the rearing of soldiers, especially young recruits. I understand boat-racers, like pugilists, are prohibited tobacco. See *Lancet* for 2d May, 1857. The huntsman who indulges in a glass of brandy (jumping powder) on the morning of the chase, does not ride to hounds like the sober rider. The Iron Duke, or any other true sportsman, never indulged on the morning of a hunt with fox-hounds. The hunter, or horse, gets only a small feed of oats, on the morning of his going out to hounds. The fox-hound gets no food on the day of his chase. The greyhound, like the fox-hound, is fed the day before. The race-horse gets only half a feed of oats on the morning of his race.

54. Thus men and animals, intended for a hard day's work, depend on the stamina acquired by previous training, and not on immediate stimulus. It is evident, that had mankind never indulged in stimulants or narcotics, they would have been earlier advanced in civilization, humanity, and morality—would have had stronger physical and higher mental powers. Let us read only the history of the great Franklin. He who smokes and drinks has his mind stupefied, like the opium-eater, or the wine-bibber, or the brandy, whisky, or ale-drinker. It is only what his mind has previously learned that he makes, or can make use of. He cannot advance a step farther.

55. The cases of diseased brain and spinal cord oc-

curring in tobacco-smokers, afford strong proof that tobacco, besides affecting the nervous system through the medium of the nerves of the nose and mouth, when smoked, must also enter into the circulation of the blood, by being mixed with the saliva, and swallowed, and thus taken up by the lacteals or absorbents. The latter process must take place in those who use tobacco in the form of snuff, as it must often be swallowed, especially during sleep. It must also occur in those who chew or *quid* the weed. The relaxation of the bowels, terminating in obstinate diarrhœa, proves that it passes down the alimentary canal with the saliva, even in the smoker.

56. When *nux vomica*, or its alkaloid, strychnia, is prescribed in small doses, several days elapse before its effects on the constitution are exemplified; and, in like manner, a considerable period intervenes before its effects leave the system, after it has been discontinued. The same apparent result seems to take place with tobacco. It is evidently a cumulative poison, as is shown by its ultimately producing softening of the brain, and frequently amaurosis.

57. In the above view of the action of tobacco, I am supported by Mr. Solly, in his interesting and able Lecture on Paralysis, published in the *Lancet* for the 13th December, 1856, and of which I have given a brief extract. There is also an interesting paper in the *Lancet* for 3d January, 1857, by Mr. Fenn of Nayland, Suffolk, wherein he states that "he has seen very mild cases of typhoid fever rendered fatal from the excessive use of tobacco." The extreme liability to attacks of typhus fever is now well ascertained; for every febrile state,

from the most simple, even influenza, is liable to degenerate into various typhoid forms. A fuller extract from Mr. Fenn's paper I have already given.

58 The incurable nature of ulceration of the tongue led me to consider whether the poison might not pervade the sanguiferous system, otherwise why should the removal of the diseased mass by ligature, or the knife, prove unsuccessful in eradicating the contaminated tissue? Dr. B——'s and Dr. Tod's case of the woman's tongue, show satisfactorily that the teeth had nothing to do in producing the ulcerated surface. Dr. B——'s case, and Dr. Tod's case of M. J—— T——'s demonstrate, that neither the knife nor the ligature had any effect in arresting the disease; and Sir Astley Cooper's views of the inutility of these means in checking the disease in Dr. B——'s case, confirm these—the constitution of the unfortunate individual having been poisoned with the ensnaring weed, through his ignorance of the nature of his hallowed luxury.

59. Representations have been made of the ulceration of the tongue as it occurred in Dr. B——'s case and also Mr. J—— T——'s. I have here to acknowledge the handsome liberality of Dr. B——, in permitting me to copy the interesting case of an affectionate friend, and the admirable sketches of the diseased tongue, made by that talented draughtsman, Mr. James Stewart. Dr. B—— acknowledges that he was an excessive smoker himself for years, until he became so nervous, that he could not steady his hand, when he "threw away tobacco forever." Here I may remark, how many narrow escapes of having cancer of the

tongue must every smoker have had, when we consider that every one with a disordered stomach has had one or more pimples on his tongue, which, had they been irritated with pungent tobacco smoke, as in Dr. B——'s case, would in all probability have ended in ulceration, becoming cancerous, and ending fatally.

60. Although the subject is yet far from being exhausted, "the tobacco controversy" has nevertheless elicited much additional information, valuable because practical, as to the effect of smoking on the human body, both in a physiological, pathological, and therapeutic aspect. The liberal and enlightened policy of the editor of the *Lancet*, by opening the columns of his journal as the medium for impartial investigation, deserves the warmest expression of thanks, not less from the profession than the public; and I make no apology for availing myself of the many interesting contributions which have there appeared on the subject.

61. Experience is the only test to confirm the decisions of truth, and refute the errors of mere authority. But its verdict unfortunately is in many cases injuriously delayed, in consequence of long-protracted and misleading exculpatory pleadings. "The evil that men do *lives after them*; the good is oft interred *with their bones*;" and this holds equally true with the customs, habits, etc. of a country. The evils these occasion, live after them. Their extent and magnitude are only known *after they have become so apparent* that they cannot longer be denied. And if the controversy evoked on the injurious effects of excessive smoking, should gradually arrest the progress of so dangerous a luxury, and sensibly diminish

a mischief which is unlimited, in a certain sense, almost either as to extent or duration, the author will rest satisfied that his own exertions, with the powerful co-operation which he has received from others, have not been in vain. He would earnestly indeed rejoice, if the national authorities here would adopt the same regulations which obtain in Switzerland. There, we are told, "that the Governing Council of the Canton of Berne have just enacted, that young men who are as yet unconfirmed (confirmation is administered in Switzerland between the fifteenth and sixteenth year) *are prohibited* from using tobacco." As the Council came to this determination in consequence of their belief in the deleterious effects of tobacco on the human frame, it seems equally to be the duty of the Council to extend their regulations, by a general prohibition, when they consider that the health of the community is injured by the use of tobacco.

62. I consider it my duty to append Dr. Hassall's truly valuable and warning remarks on tobacco smoking — to whose long and truly invaluable practical labors in the field, as well as by his writings on "adulterations detected," the nation owes a debt of gratitude which never can be repaid. "Tobacco owes its chief properties to the presence of two active principles, termed *nicotina* and *nicotianin*. The first of these, *nicotina*, is thus characterized: It is liquid and volatile, with an acrid burning taste, and possesses the strong odor of tobacco; to test-paper, it shows an alkaline reaction; water, ether, alcohol, and the oils dissolve it. It combines with various organic and inorganic acids to form salts. 1000 grains of tobacco yield, according to the kind used, from

3.86 to 11.28 grains of nicotina. The action of nicotina on the human frame is that of an acrid, narcotic poison, causing giddiness and vomiting, and, in doses of a few grains, death.

“The properties of the latter, *nicotianin*, are as follow: It is a concrete oily substance, having the smell of tobacco, and a bitter taste. It is volatile; the dilute acids and water do not dissolve it, but it is soluble in liquor potassæ and ether. In swallowing nicotianin, the same sensation is produced on the tongue and fauces as by tobacco. A grain administered internally, quickly caused giddiness, nausea, and retching. It also produces sneezing when applied to the nose. Six pounds of tobacco leaves furnish about eleven grains of nicotianin. It is also known as ‘*concrete oil of tobacco*,’ and ‘*tobacco camphor*.’

“Both these active principles and constituents have been shown, by Zeise and Melsens, to be present in the *smoke* of tobacco: they are, therefore, undoubtedly not destroyed by the combustion of the tobacco, whether used in the form of cut tobacco or cigars; but in the act of smoking they are inhaled, and thus drawn into the mouth, fauces, lungs, and even the stomach, especially when the saliva, impregnated with the tobacco smoke, is swallowed. Further, that these active constituents are actually absorbed, and make their way into the system, is proved from the sickness, giddiness, and death-like faintness experienced by those who are unaccustomed to smoking; that they are absorbed to some degree, if not to the same extent, in the case of habitual smokers of tobacco, is unquestionable — the difference in the effects experienced

being due to the circumstance of the system becoming more inured to its use, and therefore less susceptible of its influence."

63. In a moral and physical point of view, the importance of the inquiry cannot be over-estimated. The strongest proof of this, is attested by the fact, that, during last year, not less than twenty-eight million lbs. (28,000,000) of tobacco were consumed in Great Britain, exclusive of the large portion *smuggled*, which cannot be estimated.

64. A vast load of responsibility is devolved upon the members of the medical profession, who are, if not the sole, by far the most competent section of the community to pronounce a judgment on, and solve so important an inquiry. So far as the discussion has progressed, the three following deductions have been indisputably established by unquestionable medical testimony:

1st. That excessive smoking, *long persisted in*, is injurious to man in the highest degree — physically, mentally, and morally.

2dly. That the commencement of smoking *in early life*, and indulgence in the practice *early in the day*, cannot be too strongly condemned, as leading to most pernicious effects on the constitution.

3dly. That smoking, even in what is called a moderate degree, is, to say the very least of it, indirectly injurious, more especially to the young; because it is not denied, it acts as an inducement to drinking, — thus becoming the source of intemperance, and all its accompanying evils. It is notorious that the practices are, almost without exception, inseparably associated. The remark

has become a maxim: "Smoking induces drinking, drinking jaundice, and jaundice death."

65. If insurance companies would act upon Mr. Solly's test—the peculiar morbid condition of the palate and fauces as proving inveterate smoking—and raise the annual premiums to smokers in whom such appearances were detected, *as on hazardous insurances*, the practice of smoking might receive that *great and salutary check, from motives of self-interest*, which admonition and warning, as to the evils resulting from the noxious weed, have failed to effect: and the detection, by Mr. ERICSEN, of the mixture of so many deleterious and poisonous ingredients in the manufacture of snuff, it is to be expected, may, in like manner, operate upon *the selfish feelings* of the snuffer, and powerfully *tend to root out his* disgusting habit.

CHAPTER III.

COMMUNICATIONS AND EXTRACTS.

66. IN his valuable work on the "Nature and Treatment of Stomach and Urinary Diseases," Dr. Prout, at pages 24 and 25, observes: "There is an article much used in various ways, though not as an aliment, the deleterious effects of which on the assimilating organs, &c., require to be briefly noticed, viz., *tobacco*. Although confessedly one of the most virulent poisons in nature, yet such is the fascinating influence of this noxious weed, that mankind resort to it in every mode they can devise, to ensure its stupefying and pernicious agency. Tobacco disorders the assimilating functions in general, but particularly as I believe, the assimilation of the saccharine principle. I have never, indeed, been able to trace the development of oxalic acid to the use of tobacco; but that some analogous and equally poisonous principle (probably of an acid nature,) is generated in certain individuals by its abuse, is evident from their cachectic looks, and from the dark and often greenish-yellow tint of their blood. The severe and peculiar dyspeptic symptoms sometimes produced by inveterate snuff-taking are well known; and I have more than once seen such cases terminate fatally with malignant disease of the stomach and liver. Great smokers, also, espe-

cially those who employ short pipes and cigars, are said to be liable to cancerous affections of the lips. But it happens with tobacco, as with deleterious articles of diet, the strong and healthy suffer comparatively little, while the weak and predisposed to disease fall victims to its poisonous operation. Surely, if the dictates of reason were allowed to prevail, an article so injurious to the health, and so offensive in all its forms and modes of employment, would speedily be banished from common use."

67. Professor Petit-Radel is said to have died of cancer of the pylorus, consequent on smoking tobacco.

68. Bouissiron states that he has seen many smokers perish of atrophy.

69. Pereira, in his valuable work on Chemistry and Materia Medica, page 1426, states, that "Nicotina is an energetic poison, almost equalling in activity hydrocyanic acid."

70. In the Dictionnaire des Sciences Medicalés for 1821, two brothers are said to have smoked until they died of apoplexy—the one after smoking seventeen pipes, the other eighteen pipes. Fourcroy cites several instances of the destructive effects of tobacco in his translation of Ramazzani. The little daughter of a tobacco merchant died in frightful convulsions, from having slept in a chamber where a great quantity of tobacco had been rasped. An intoxicated soldier swallowed his saliva impregnated with tobacco, awoke in strong convulsions, and nearly became insane. I have strong suspicions that such a melancholy event as the latter must have occurred frequently.

71. Orfila, in his *General System of Toxicology*, 1817, Vol. II., page 211, quotes the following experiments to show the poisonous qualities of tobacco: "Sir Benjamin Brodie injected into the rectum of several dogs, and one cat, from one to four ounces of a strong infusion of tobacco; these animals became insensible, motionless, and all died in less than ten minutes; the pulsations of the heart were no more sensible a minute before death; one of them only vomited. Their bodies were opened immediately after death; the heart was very much distended, and no longer contracted."

72. Sir B. Brodie states in his *Physiological Researches*, published in 1851, under *Effects of Vegetable Poisons*: "We may conclude from these experiments, that the empyreumatic oil of tobacco occasions death, by destroying the functions of the brain, without directly acting on the circulation. In other words, its effects are similar to those of alcohol, the juice of aconite, and the essential oil of almonds."

73. In volume seventh of the *Biographical Dictionary*, the Rev. Mr. Rose, under the life of Richard Fletcher, Bishop of London, informs us, that "he (the Bishop) was very fond of tobacco, then little known, and that Camden imputes his death to the immoderate use of it." And Camden, in his *Annals*, 3d edition, p. 469, translation, states that "Richard Fletcher, Bishop of London, a courtly prelate, who, while by immoderate use of tobacco he smothered the cares he took by means of his unlucky marriage, and by the Queen disliked (who did not so well like of married bishops), breathed out his life." The Bishop died in 1596.

74. Dr. Cleland, in his treatise on the Properties Chemical and Medical, of Tobacco, states that "the circumstance which induced Amurath the Fourth to be so strict in punishing tobacco smokers, was the dread which he entertained of the population being thereby diminished, from the antiphrodisiac property which he supposed tobacco to possess"—*vide* Cleland on the History and Properties, Chemical and Medical, of Tobacco, p. G. If, as I understand, Amurath is synonymous with Mourad, the antiphrodisiac properties of tobacco must have been a subject of credence and observation so early as the first part of the seventeenth century, the period of the reign of the fourth Amurath or Mourad, extending from 1622 to 1640.

The Counter-blast of King James had considerably preceded the prohibitory punishment against the use of tobacco by the Ottoman Sultan.

75. The injurious properties of tobacco are determined by the following analysis of its chemical constituents by Professor Johnston, of Durham, in his Chemistry of Common Life: "These are three in number: a volatile oil, a volatile alkali, and an empyreumatic oil." . . . "The volatile oil has the odor of tobacco, and possesses a bitter taste. On the mouth and throat it produces a sensation similar to that caused by tobacco smoke. When applied to the nose, it occasions sneezing, and when taken internally, it gives rise to giddiness, nausea, and an inclination to vomit." "The volatile alkali has the odor of tobacco, an acrid, burning, long-continuing tobacco taste, and possesses narcotic and very poisonous qualities. In this latter respect, it is scarcely inferior to

prussic acid—a single drop being sufficient to kill a dog. Its vapor is so irritating, that it is difficult to breathe in a room in which a single drop has been evaporated. The reader may recollect the great sensation produced in 1851, by the trial of the Comte de Bocarmé, at Mons, and his subsequent execution, for poisoning his brother-in-law with nicotin. A hundred pounds of the dry tobacco-leaf yield about seven pounds of nicotin. In smoking a hundred grains of tobacco, therefore, say a quarter of an ounce, there may be drawn into the mouth *two grains or more of one of the most subtle of all known poisons.*” “The empyreumatic oil is acrid and disagreeable to the taste, narcotic, and poisonous. One drop applied to the tongue of a cat brought on convulsions, and in two minutes occasioned death. The Hottentots are said to kill snakes by putting a drop of it on their tongues. Under its influence, the reptiles die as instantaneously as if killed by an electric shock. It appears to act nearly in the same way as prussic acid.”

“The crude oil is supposed to be the juice of the cursed hebenon,” described by Shakspeare as a distillment.

“Sleeping within mine orchard,
My custom always of the afternoon,
Upon my secure hour thy uncle stole,
With juice of cursed hebanon in a vial,
And in the porches of mine ear did pour
The leperous distillment: whose effect
Holds such an enmity with blood of man,
That, swift as quicksilver, it courses through
The natural gates and alleys of the body;
And with a sudden vigour it doth posset
And curd, like eager droppings into milk,

The thin and wholesome blood; so did it mine;
 And a most instant tetter bark'd about,
 Most lazar-like, with vile and loathsome crust,
 All my smooth body."

HAMLET—Act i., Scene v.

"The cigar, especially if smoked to the end, discharges directly into the mouth of the smoker everything that is produced by the burning. Thus, the more rapidly the leaf burns and the smoke is inhaled, the greater the proportion of the poisonous substances which is drawn into the mouth. And finally, when the saliva is retained, the fullest effect of all the three narcotic ingredients of the smoke will be produced upon the nervous system of the smoker. It is not surprising, therefore, that those who have been accustomed to smoke cigars, especially of strong tobacco, should find any other pipe both tame and tasteless, except the short black *cutty*, which has lately come into favor among inveterate smokers. Such persons live in an almost constant state of narcotism or narcotic drunkenness, which must ultimately affect the health even of the strongest.

"The chewer of tobacco, it will be understood from the above description, does not experience the effects of the poisonous oil which is produced during the burning of the leaf. The natural volatile oil and the nicotin are the substances which act upon him. These, from the quantity of them which he involuntarily swallows or absorbs, impair his appetite, and gradually weaken his powers of digestion.

"The same remarks apply to the taker of snuff. But his drug is still milder than that of the chewer. During

the first fermentation which the leaf undergoes in preparing it for the manufacturer of snuff, and again during the second fermentation, after it is ground, a large proportion of the nicotin escapes, or is decomposed. The ammonia produced during these fermentations is partly the result of this decomposition. Further, the artificial drying or roasting to which tobacco is exposed in fitting it for the dry snuffs, expels a portion of the natural volatile oil, as well as an additional portion of the natural volatile alkali or nicotin. Manufactured snuff, therefore, as it is drawn up into the nose, and especially dried snuff, is much less rich in active ingredients than the natural leaf. Even the rappees, though generally made from the strongest Virginian and European tobaccos, containing five or six per cent. of nicotin, retain only two per cent. when fully manufactured."

76. The following extracts are from King James's "Counterblast to Tobacco," pp. 213-222 — a work from its rarity inaccessible to the general reader, and which may be considered not uninteresting by many, considering the character of the royal author, and the early period at which his remarks were published, nearly two centuries and a half ago:

"In my opinion," says the royal commentator, "there cannot be a more base and yet more hurtful corruption in a country, than is the vile use (or rather abuse) of taking tobacco in this kingdom, which hath moved me shortly to discover the abuses thereof in the following little pamphlet." In the Counterblast to Tobacco, he remarks: "That the manifold abuses of this vile custom of Tobacco-taking may the better be espied, it is fit,

that you first enter into consideration, both of the first originall thereof, and likewise of the reasons of the first entry thereof into this country. For certainly, as such customs that have their first institution, either from a godly, necessary, or honourable ground, and are first brought in by the means of some worthy, vertuous, and great personage, are ever and most justly holden in great and reverend estimation and account, by all wise, virtuous, and temperate spirits, so should it by the contrary, justly bring a disgrace into that sort of customs, which having their originall from base corruption and barbarity, do in like sort make their first entry into a country, by an inconsiderate and childish affectation of novelty, as is the true case of the first invention of Tobacco-taking, and of the first entry thereof among us. For Tobacco was first found out by some of the barbarous Indians."

"Tobacco is, as you use or rather abuse it, a branch of the sin of drunkenness, which is the root of all sins." "To take a custom in anything that cannot be left again, is most harmful to the people of any land. *Mollicies* and delicacy were the wreck and overthrow, first of the Persian and next of the Roman empire. And this very custom of taking Tobacco is even at this day accounted so effeminate among the Indians themselves, as in the market they will offer no price for a slave to be sold, whom they find to be a great tobacco-taker."

"Is it not a great vanity, that a man cannot heartily welcome his friend now, but straight they must be in hand with tobacco; no, it is become in place of a cure, a point of good fellowship, and he that will refuse to take

a pipe of tobacco among his fellows (though by his own election he would rather feel the savour of a sinke), is accounted peevish and no good company, even as they do with tippling in the cold eastern countries. Yea, the mistress cannot in a more mannerly kind entertain her servant, than by giving her, out of her fair hand, a pipe of tobacco."

"Moreover, which is a great iniquity and against all humanity, the husband shall not be ashamed to reduce thereby his delicate, wholesome, and clean-complexioned wife to that extremity, that either she must also corrupt her sweet breath therewith, or else resolve to live in a perpetual stinking torment."

He concludes thus in reference to smoking: "Have you not reason then to be ashamed, and to forbear this filthy novelty, so basely grounded, so foolishly received, and so grossly mistaken, in the right use thereof." "A custom loathsome to the eye, hateful to the nose, harmful to the brain, dangerous to the lungs, and in the black, stinking fume thereof, nearest resembling the horrible Stygian smoke of the pit that is bottomless."

Vide "Workes of the Most High and Mightie Prince James, by the grace of God, King of Great Britain," &c., 1616.

77. The following extract is from an able article on the United States, which appeared in the London *Spectator* of July 5th, 1856:

"We have been long familiar with the fact, that the manners and social habits of Americans are not to our taste, and that few persons who could obtain a respectable maintenance in Europe, would find the change to

the United States a change for the better. . . .

It is in startling contrast with our ordinary train of thought about the United States, to hear it even whispered as a possibility, that the race of men which inhabit the country is undergoing a process of physical and moral degeneracy; that the symptoms we have been accustomed to consider as evidences of growth are really proofs of decay; that the people are, like medlars, rotten before they are ripe; and that a premature senility is the true characteristic of the great Anglo-Celtic Republic of the West. That such a theory should have been started, gives one a shock, which does not pass off when the facts upon which it professes to rest are calmly considered. It is said, for instance, that the bulk of Americans live thoroughly unwholesome lives; consuming inordinate quantities of spirituous liquors from youth upward, and at all hours of the day *smoking and chewing tobacco to excess*, eating greedily, and giving themselves no time to digest their food, always in a bustle and excitement, enjoying neither quiet nor rational recreation, nor domestic peace. And how few Americans has any Englishman known of whom he could say, that they were genial or happy! *what an anxious, nervous, haggard expression of face, is that by which we instinctively recognize a Yankee everywhere!* how completely the manner, and countenance, and figure of the typical Yankee answer to this account of the usual life of the people! What if the bad habits of men and women, acting with a climate that tends to exhaust vitality, should really in a few generations have produced a palpable inferiority of physique? The positive asser-

tion of this degeneration would indeed be most unphilosophical, on a basis of facts such as are patent to common observation; but that these facts are patent, is sufficient to excite the alarm and sharpen the self-watchfulness of all classes of Americans, who can look forward to the tremendous consequences of a degradation of the national nerve and muscle, through intemperance and *bad habits* of living. . . . The fashionable classes of American society are more notorious for their luxury than for their refinement or ambition."

78. I am given to understand that there exists a rule among a large and influential religious sect, when a student presents himself as a candidate for examination for ordination, which compels him to answer, Whether he smokes tobacco, or uses it in any form? If he confesses he does so, he is remitted to his studies until he gives it up, and can aver that he has "thrown away tobacco for ever."

79. The great Wesley, I believe, first suggested the rule, which still obtains, that no minister connected with the Wesleyan body should use snuff or tobacco, unless prescribed by a physician.

80. Adam Clarke, LL.D., a Methodist divine, published in 1837, among his detached pieces, a dissertation on "the Use and Abuse of Tobacco." It is unnecessary for me to enter at present into a formal criticism of his treatise, but in referring to such authority in support of my views, I may be permitted to quote the following case. At page 29, he says: "A person of my acquaintance, who had been an immoderate snuff-taker for up-

wards of forty years, was frequently afflicted with a sudden suppression of breathing, occasioned by a paralytic state of the muscles which serve for respiration. These affections grew more and more alarming, and seriously threatened her life. The only relief she got in such cases, was from a cup of cold water poured down her throat. This became so necessary to her, that she could never venture to attend even a place of worship, without having a small vessel of water with her, and a friend to administer it. At last she left off snuff; the muscles re-acquired their proper tone, and, in a short time after, she was entirely cured of a disorder, occasioned solely by her attachment to the snuff-box, and to which she had nearly fallen a victim."

81. Anton, in his interesting "Retrospect of a Military Life," relates the death of one of the sergeants of the 42d Regiment from smoking tobacco, which apparently had induced apoplexy. See page 154. On conversing with Mr. Anton, he states that the sergeant was an excessive smoker of the weed.

82. The Paris correspondent of the *New Orleans Picayune*, in recording the death of the poet Berat, says: "Berat was not forty-five years old. He, too, was slain by that disease which is so fell a destroyer to our contemporaries, and especially to Frenchmen—the softening of the spinal marrow. Trousseau attributes to the excessive use of tobacco the fatal effects on the nervous system. Roger Collard, who died in the dawn of a most brilliant career, some three years ago, of this terrible disease, attributed his untimely end to his cigar. Count D'Orsay was another victim of this disease, and

his death made a profound impression on the Emperor, who at once sent his physician, Bretonneau, to whom the Count complained of fatigue in all his members—of enervation. Dr. Bretonneau replied, ‘You surely smoke some twelve or fifteen cigars a-day. Smoke less. Abstain, if you can, altogether from smoking, and you will end these symptoms of weakness and enervation.’ ”

83. In the able Clinical Lecture of Mr. Solly, Surgeon of St. Thomas’s Hospital, on Paralysis, there occurs the following statement :

“There was another habit, also, in which my patient indulged, and which I cannot but regard as the curse of the present age—I mean smoking. Now, don’t be frightened, my young friends, I am not going to give a sermon against smoking—that is not my business; but it is my business to point out to you all the various and insidious causes of general paralysis, and smoking is one of them. *I know of no single vice which does so much harm as smoking.* It is a *snare and a delusion.* It soothes the excited nervous system at the time, to render it *more irritable and more feeble ultimately.* It is like opium in that respect; and if you want to know all the wretchedness which this drug can produce, you should read the ‘Confessions of an Opium-eater.’ I can always distinguish by his complexion a man who smokes much; and the appearance which the fauces present, is an unerring guide to the habits of such a man. I believe that *cases of general paralysis* are more frequent in England than they used to be, and I suspect that smoking tobacco is *one of the causes of that increase.*”
— *Vide Lancet* for 13th December, 1856, page 641.

84. I lately visited a gentleman in a Lunatic Asylum, laboring under general paralysis, and his mind becoming idiotical. On corresponding with his former medical attendant, I understand his habits were, that he lived temperately as regarded drink, but worked hard in a mercantile house, and smoked to excess; the phrase he makes use of is — that “he blazed away at a fearful rate.”

85. In Dr. William Henderson’s work on “Plain Rules for Improving Health,” second edition, pages 87, 88, 89, and 261, there are cases of dyspepsia, palpitation of the heart, of *insanity*, etc. produced by using tobacco. One gentleman, “from having been one of the most healthy and FEARLESS men, became one of the most timid. He could not present a petition, much less say a word concerning it, though he was a practising lawyer. He was afraid to be left alone at night.”

In the cases of insanity mentioned by him, the patients “had used tobacco to excess, though perfectly temperate otherwise, as regarded drink.”

The reader is referred to pages 18 and 52, for further information on mania.

86. In the *Lancet* for 3d January, 1857, Mr. Fenn thus describes the result of his investigations on the effects of tobacco:

“Tobacco,” says he, “has the effect of relaxing the skin and mucous membranes, causing the latter to pour out their secretions more freely, and to shed the epithelium more rapidly; at the same time, the sensibility of the nervous system is greatly depressed, and the vital force diminished. On account of its softening and re-

laxing effect upon the mucous membrane of the bowels, it is greatly resorted to in habitual constipation. But it will be seen that this weakening influence is exerted upon the organ liable to be most seriously affected in typhoid fever, and very frequently is the predisposing cause of the uncontrollable diarrhœa and hæmorrhage which occur in such cases. *I have seen very mild cases of typhoid fever rendered fatal, from the excessive use of tobacco, either from diarrhœa or peritonitis, the result of perforation.* Now perforation scarcely ever occurs until the patient is moribund, and the body semi-putrid; but *the immoderate use of tobacco will predispose to perforation under very different circumstances.* For instance, a gentleman in my practice had progressed very favorably to the fifteenth day of typhoid fever: the diarrhœa was very moderate, and the symptoms altogether so mild as to call for a purely expectant treatment, nourishment, with very little stimulant, sufficing to keep the patient in a very fair condition from day to day. On the fifteenth day his bowels were relaxed at 6 in the morning; at 5 P. M. he got out to have his bed made, and as his bowels had not moved since 6 A. M., he thought it might save getting out again if he could evacuate them at the same time; for this purpose he made a straining effort, and almost instantly felt something give way; a violent pain ran rapidly across the region of the bladder, and soon diffused itself over the whole abdomen; tympany occurred within an hour, and *in twenty-four hours he died from peritonitis, the result of perforation of the small intestine.* *A milder case than this I never saw, but the patient was accustomed to smoke ten or twelve*

cigars daily. I could quote other cases almost parallel, *where the immoderate use of tobacco destroyed all the chances of recovery, in otherwise favorable or merely doubtful cases of typhoid.*" How many of our brave soldiers must have died at Varna, Burmah, and other localities, where diarrhœa, dysentery, and cholera were epidemic, and where tobacco was consumed immoderately! I should imagine that the greater number of those who died suddenly, and in agony, must have had perforated intestine.

The reader is referred to page 53, Prout's experience, which in a measure confirms this.

87. Dr. B——, an experienced physician, has kindly communicated the following interesting and satisfactory case of a near relative, who fell a victim to tobacco smoking, which produced cancerous ulceration of the tongue; also a graphic delineation of the disease.

Mr. A., a gentleman about fifty-eight years of age, of a strong wiry frame and healthy constitution, none of whose relations had ever had a cancerous affection, was observed, in 1831, to articulate with difficulty—his tongue being too large for his mouth. On being interrogated by a medical friend, a relation of his own, he acknowledged that he was a devoted victim to the weed. His tongue at this time was enlarged, firm, and coated with a white crust, somewhat resembling the confectionery named *kisses*. There was a sulcus in the centre of the tongue, with a bright red line at the base. The sore was washed with a solution of the chlorate of soda, before this sketch was taken. His medical attendant, to induce him to give up smoking, informed him that

the disease of his tongue would kill him; so that he at once "threw away tobacco forever."

From this time the disease progressively got worse. In May, 1833, the patient, accompanied by his medical relation, visited London, and consulted Sir Astley Cooper, when the patient put the following question to Sir Astley: "Had I come early enough, could I have been cured?"—to which Sir Astley replied: "Sir, there never was a time early enough to have warranted an operation: every fibre, every papilla of your tongue is diseased; and it would have been merciful to have clapped a pistol to your head, the instant the disease began." Sir Astley prescribed for him, but to no purpose, as the disease increased with a rapidity inconceivable; for by the end of June, the anterior portion had mouldered away (so graphically described by his medical attendant), the tongue being previously cleansed by the chlorate of soda, in doing which the fœtor was intolerable. He now suffered acute pain, and was obliged to take morphia every night. His pulse was from 120 to 160. In July, his spirits began to be dreadfully depressed, accompanied with pains in his head, and he at this time remained chiefly in bed.

By the 24th, the ulceration had extended to the fauces, and the glands at the angle of the lower jaw bone became swollen. Deglutition was now difficult and painful, and his strength began to fail—but still no hæmorrhage.

By the middle of August, the tongue had *mouldered* away—the stump presenting an irregular, lumpy surface, covered with a flocculent, dirty, greenish-white

deposit, and the ulceration extending on the left side to the os hyoides, accompanied with a most offensive discharge. There was a spasmodic difficulty in swallowing, a troublesome cough, with difficult expectoration, great mental depression, and hallucination of mind.

On the 25th of this month, for the first time, an oozing of arterial blood took place, but not to any extent. His pulse was 130, and very weak—some aberration of mind. Cough very incessant during the night, and he appeared in great agony.

In the beginning of September he became very weak, so that he was confined to bed, passing restless nights, with profuse perspirations. His mind much affected, breathing very difficult, with constant expectoration of viscid phlegm mixed with blood. When he attempted to swallow fluids, they were returned by the nostrils. The dressing the extensively-ulcerated surface caused severe pain, and the fœtor was excessively offensive. The sub-maxillary glands were now greatly enlarged. Pulse generally above 120.

By the 25th September, the whole of the uvula, velum, and tonsils were destroyed by the ulceration. The glands at the angle of the lower jaw larger and more painful. He was then unable to swallow, and hence could take no nourishment.

From this to the 2d October, all his symptoms became aggravated, the salivation more profuse, the perspirations more abundant, and the difficulty of breathing insupportable; and after three hours of intense suffering he expired. "All the death-bed scenes and death-bed sufferings I had ever witnessed," says his medical

friend, "were comparatively easy, to the individual agonies and gaspings for breath this kind and amiable man was destined to endure." His medical friend adds: "The disease is novel and unique to me" — "it has differed in its appearance and progress from any and every disease of the tongue that I have ever seen or read of."

Professor Bennet, in his microscopic examination of a section of the late D. R.'s tongue, goes to corroborate the above view.

Query—If the ulceration differs from carcinoma, a smoker runs the risk of two diseases, viz., carcinomatous sarcoma, and carcinomatous nicotianum?

A case precisely similar to Mr. A.'s, I have received from my friend Dr. Tod, of Gilmore Place.

88. A middle-aged woman, an inveterate smoker, was alarmed at seeing a small warty-looking growth in the centre of her tongue, which frequently gave her a stinging pain, and which she requested a neighbor to look at. She continued to smoke her pipe, never dreaming that the tobacco was the cause of her sufferings, until the excrescence began to ulcerate, which it did rapidly, and extended to the root of her tongue, destroying the anterior portion by sloughing, and ultimately destroying life in twelve months.

89. J. T——, ætatis 46, consulted Dr. Tod, of Gilmore Place, in the middle of January, 1856, regarding a slight swelling on the right side of his tongue, which was attributed partly to decayed teeth, and partly to smoking tobacco. He consumed two ounces weekly with a pipe. His wife states, that whenever any thing agi-

tated him, he flew to the pipe, and smoked until he trembled nervously. He "threw away tobacco forever." As three of the contiguous teeth were decayed, with ragged edges, they were immediately extracted, but without any benefit. In a short time, a fissure took place at the swollen point, which increasing, I was consulted, and, after a careful examination, it was pronounced cancerous, and recommended to be treated by ligature. On the 14th July, 1856, ligatures were passed from under the tongue to its upper surface, so as to include all the disease; but on the fifth day, such smart hæmorrhage took place from the central ligature, that they required to be removed, and the actual cautery applied. The cautery was repeated very often in consequence of the bleeding occurring. [The manner of applying ligatures to the tongue, when affected with cancer, is delineated in Fig. 4 of Plate XXXVIII. of my Practical Surgery, 2d edition, and described at page 305 of the same work.]

In September following, the glands at the angle of the jaw became swollen, and threatened suffocation. The ulceration spread rapidly, involving the right half of the tongue. At this time he was sadly tormented with profuse salivation, and fœtor of breath. His pulse from first to last has never been under 100, but often above.

Towards the end of October, fearful hæmorrhage took place, requiring Dr. Tod to sit up all the night of the 27th, applying one actual cautery at a black heat after another. Next day his tongue was swollen as if he had been severely salivated with mercury, the point pro-

jecting an inch or two beyond the lips and teeth, and very turgid.

3d November.—Tongue still tremendously swollen and pallid, causing perpetual exudation of the saliva, and preventing him swallowing. He is now much emaciated, and the pulse never under 110. The glands at the back of the tongue and neck are much increased in size.

10th November.—His tongue now projects beyond his teeth fully two inches, and he cannot retract it. The teeth are beginning to indent themselves in the soft tongue, and threaten to cut it in two. His existence is now kept up, more by nutrient enemata, than by nourishment from the mouth, the difficulty of swallowing is so distressing.

19th.—Dr. Tod nipped, with the bone pliers, the upper teeth parallel with the gum, which gave him some relief.

3d December.—His face has a hideous appearance, from the protruded swollen tongue, which is daily becoming more detached by the ulceration extending across, and from the enormously swollen glands of the neck. He is unable to swallow any quantity, and is therefore still nourished by enemata. In the night time, his breathing is so laborious, that it can be heard in the adjoining room. Smell of tongue still very offensive.

22d.—At his solicitation we have this day put a ligature in the fossa, between the root and the projecting portion of the tongue, to facilitate the separation of the latter. While tightening the ligature, a point of the

surface of the projected part bled a little, but soon stopped. We punctured the tumor below his chin, as it pointed, and the skin threatened to inflame and ulcerate. Strumous-looking matter, whey-colored, with flakes of lymph, flowed.

1st January, 1857.—Whenever the ligature is tightened, it threatens to bleed. He is now fearfully emaciated, pulse hardly perceptible, and he is delirious during the night. Bleeding occurs from time to time to the extent of an ounce or so, but is easily checked.

4th. — For the last four days, life has been ebbing apace, but fortunately no pain of any consequence. He expired at 3 o'clock, P. M. He died more from inanition than any other cause.

90. Upon investigation, I find that the late Dr. R—— fell a victim to the smoking of tobacco, and hence I give a brief description of his case, which has already been published, but with no reference to the cause—tobacco. I had myself often seen him smoking, and on inquiry at his nearest relatives', I understand that he was devoted to the custom. One of his relatives states, that he smoked till within two months of his death; and his biographer writes, that "in the evening he obtained temporary relief from a cigar." Now, unless Dr. R—— had been accustomed to the pernicious weed, he never would have been able, with an ulcerated tongue, to smoke a cigar.

His biographer thus writes: "In the month of November, 1847, a small blister appeared on his tongue, which before long opened into an ulcer, betraying the symptoms of cancer—a disease which, in spite of the advancement of medicine, is still almost synonymous

with protracted, unappeasable torture, and painful, lingering death."

In May, 1848, he consulted the surgical staff of London, from Sir Benjamin Brodie downwards, who tried to dissuade him from an operation; so that he returned to Scotland.

In July, 1848, the ulcerated surface was the size of a five-shilling piece, and soon afterwards a lymphatic gland appeared enlarged on the right side of his neck. On the last day of August, 1848, he prevailed on a dexterous operator to excise it, which was accordingly done most scientifically. In a week, trifling bleeding supervened.

Professor Bennet, of this University, a most profound physiologist, examined the excised portion of the tongue, and thus remarks:

"I took the utmost pains to make out all the facts connected with the structure of this lesion; and it will be seen, on comparing the figures representing it with those illustrating the formation of cancerous growths, that they differ materially. In this, as in most other cases of epithelial ulceration, the disease commenced at the surface, producing increased formation of epithelial cells, and great thickening and induration by their condensation. A true cancer always commences below the epithelium, in the form of a white deposit, which soon appears as a nodule, and by its pressure subsequently causes ulceration through the mucous coat. A thin slice of the hardened schirrus-looking matter presented a very different appearance from that observed in similar slices removed from cancerous growths, and exhibiting nothing

but epithelial scales, more or less condensed and pressed together."

In November, 1848, the submaxillary glands enlarged, and were excised. These, when carefully examined, exhibited the same epithelial form of morbid growth as affects the tongue or face.

On the 16th July, 1849, bleeding took place, and again on the 18th, violent hæmorrhage occurred, followed by great exhaustion. For several days no food or drink was taken. Every function but breathing seemed suspended. When sensitiveness to all else appeared extinct, the consciousness of agony returned; and before the final close, which took place on the 30th of that month, the suffering, but for chloroform, would have been extreme.

Here I may remark, that it seems as malignant and as painful a disease as exists; so that, to the sufferer, it is immaterial whether it is cancrioid or carcinomatous.

Dr. R—— is described by his biographer as enjoying health in its fullest measure when attacked—"that he had a robust body, great physical strength, a sanguine temperament, a vigorous intellect, a happy temper, and a resolute, courageous spirit."

91. A merchant in Dublin lately fell a victim to cancer of the tongue, produced by smoking. A friend, whose authority is undoubted, visited him a few days before his death; but the picture was so appalling that he could not make up his mind to see him again. He was sitting surrounded by an amiable family, writhing in agony, and unable to speak or swallow, from his tongue having *mouldered* away. He was reduced nine stone in

a few months. I wrote his ordinary medical attendant to furnish me with a narrative of his case, which I have not yet obtained.

92. From the cases I have recorded, I may presume that a person with a cancerous diathesis, or predisposition or constitution, smoking a cutty pipe, must be liable to communicate the disease to another who might take up the same pipe.

93. In the syphilitic constitution, the mucous membrane of the mouth is very prone to excitement and ulceration; and if the latter is produced by smoking tobacco, the ulceration, in nine cases out of ten, will degenerate into cancerous or canceroid ulceration, and prove fatal, after lingering and cruel sufferings.

94. Since I commenced the investigation of cancer of the tongue, I have been led to consider the structure of the tongue. 1st. Can the papillæ be the termination of the nerves of sensation—the glosso-pharyngeal and the gustatory branches of the inferior maxillary nerves? 2dly. Do these nerves of sensation terminate in pulpy matter, like the other nerves of sensation? Thus, the olfactory nerves spread like pulp on the mucous membrane of the nares, after passing through the cribriform plate of the ethmoid bone; the optic nerve becomes the retina, after piercing the sclerotic coat of the eye; the auditory is distributed on the labyrinth of the ear, viz. the cochlea, vestibule, and three semi-circular canals. The nerves of the fingers form the pacinian bodies.

Reasoning from analogy, therefore, that four of the senses—smelling, seeing, hearing, and touching—are supplied with nerves which terminate in pulpy expanse,

it seems consistent to expect to find the same arrangement or distribution in the nerves of tasting. In Kölliker's able work on human histology, he describes the various tissues of the tongue as being very minute and delicate; but he says: "I have been unable to make out, with certainty, how the nerves terminate; yet everything appeared to indicate the existence of loops—not, however, in the simple papillæ, but at their base." Kölliker quotes "Remark," who states that "the terminal branches of the glosso-pharyngeal and gustatory nerves form a very dense plexus before entering the papillæ." The largest animals examined were the calf and sheep. It would appear necessary to examine the tongues of the horse and elephant, and the foetal tongue, like the foetal brain, according to Tiedemann.

From the delicate texture of the tongue, must arise the difficulty of arresting disease in it, especially malignant ulceration, and when the constitution is poisoned with tobacco, for then it seems to spread from the one end to the other with electric rapidity.

95. Since the publication of the preceding observations by Sir A. Cooper, Professor Syme has excised the entire tongue in two cases, both of which were followed by pyæmia and death. One would have thought, that the frequency of so fatal an affection as pyæmia supervening on the perineal section, would have made any surgeon acquainted with pathology, pause, before excising the tongue, which is equally vascular as the corpus spongiosum urethræ, and much nearer the lungs, wherein pyæmia develops itself. But as John Bell says, "Operations have come at last to represent the whole science."

Such seems to be the case in the opinion at least of the so-called "First Surgeon in Europe."

96. The best marked case of pyæmia is that of Cree, occurring from the perineal section, which is detailed in my Practical Observations on the Treatment of Stricture of the Urethra. Professor Syme must have preserved in his note-book a few similarly fatal cases. From these two instances of pyæmia supervening to excision of the tongue, and those following the perineal section, it is evident how pyæmia occurs so often after wounds in vascular tissues, especially veins — inflammation is first set up, and suppuration rapidly following, the pus becomes absorbed by the veins, acts as a poison in the circulating system, and hence proves rapidly fatal. For a full detail of the first case, the reader is referred to two unanswerable letters by Dr. John Renton, in the Medical Times and Gazette for the 20th February and 13th March, 1858. The two patients, more especially the second, Richard Ratcliff, are stated to have been great smokers of tobacco.

97. The following is an interesting case of amaurosis, or blindness, from smoking tobacco: — J. W., a coach-builder, upwards of fifty years of age, had smoked for thirty years, generally two ounces of tobacco a week, when he became so blind as to be unable to work, or even walk through a crowded street. He applied to an eye dispensary, where the medical man, who is considered a good oculist, told him that he labored under amaurosis, and prescribed accordingly. After following his treatment for some time, and finding himself no better, he visited a neighboring city, and consulted an-

other oculist, who instantly detected tobacco to be the cause of his blindness, as if the obnoxious stench of the weed had led him at once to this conclusion. J. W. instantly "threw away tobacco for ever," visited a relative in the Highlands, where in a short time his vision gradually returned, became clear, and enabled him to return to his business quite cured. It is now six years since he recovered, and he now can read a small printed book without glasses. He says his health is much improved since he gave up the pernicious weed.

98. This case is important, as it explains how tobacco affects us. If tobacco smoking produces such serious effects on the nerves of the eyes, so as to cause blindness, why may it not produce paralysis of any of the other nerves, as those of the arms, legs, and indeed of every other organ. (See page 34.)

99. It would appear that the nerves of the mouth and nostrils are first affected—then the brain—thirdly, the nerves of the eyes—and lastly, the whole nervous system. At the same time, the poison, being mixed and swallowed with the saliva, must be absorbed by the lymphatics of the stomach and intestines, and be thus circulated with the blood, and again act on the nervous system like strychnine.

100. I was consulted by a captain of dragoons, affected with amaurosis, consequent on smoking tobacco, for which he was compelled to sell his commission, after being several years in the army, and only forty years of age. I could not convince him that his smoking tobacco was the cause of his blindness, and I suppose that he continues blind to this date.

101. In a recent correspondence with Mr. Anton, he thus states: "I am convinced that a soldier, who is an *inveterate* smoker, is incapable to level his musket with precision, and without shaking his hand, so as to take a steady aim at the object he is desirous to hit." . . . "Your remarks," says he, "bring back to my recollection many instances of that nervous trepidation, which rendered many a brave man useless as a marksman or musqueteer."

102. The British soldiers, says Mr. O'Flaherty, had no tobacco at the battles of Alma, Balaklava, or Inkermann, while the Russians had too much, both of tobacco and raki; and that he never saw stronger men or more noble soldiers than the Russians.

He also says that he has known men, who, previous to their using tobacco, were the finest marksmen, and could send a bullet through the target at 800 yards distance; but who, after they had commenced to smoke and chew tobacco, became so nervous that they could scarcely send a bullet into a haystack at 100 yards distance. In this statement, O'Flaherty is confirmed by a soldier of the Scots Fusilier Guards:

103. Here I may remark, that surgeons, especially operating surgeons, who smoke tobacco, cannot have the same cool head and hand, as he who never uses the weed. The late Mr. Liston never smoked. Before performing any important operation, he took a gallop over the Pentland Hills to brace his nerves.

104. Dr. M'Cosh, once a professor in the Calcutta Medical College, who had much experience in the East Indies, having served in the Bengal Medical Staff in

four campaigns and nine general actions, and experienced all the vicissitudes of an Indian climate, from the snowy mountains of the Khyber to the tepid marshes of Burmah, makes the following valuable observations in his "Advice to Officers in India":

"Tobacco smoking," says he, "is a very common habit; so much so, that two-thirds of the European population indulge in it; nor is the vice contracted in India only. A large proportion of cadets acquire the habit in England, and are not a little proud of their accomplishment. Young men think it manly to blow as big a cloud as their commanding officer. Their breath not only smells of an old pipe, but every thing that comes out of their house — a book, a newspaper, or a letter — does the same; so that the perusal, by any one not seasoned to such fumes, is sickening; and to ladies, disgusting. The very difficulty of learning to smoke, the headache, and nausea, and vertigo, with which that is acquired, are enough to show that the habit is most injurious; only made endurable by long habit, and persevered in from want of some more congenial occupation. Habitual smoking, too, often leads to habitual drinking; the drain upon the system must be replenished, and brandy and water is the succedaneum. Some pretend to gainsay this, and maintain that they do not spit; but this only shows the torpor of the salivary glands; for, if they were in a healthy state, saliva would be as copious as when they were learning the habit.

105. Some smoke from medicinal motives, and to produce a laxative effect, or from absurd notions that it neutralizes malaria; but these same persons would

grumble loudly at being obliged to take a pill every evening to produce the same effect. If a general order were issued, rendering smoking compulsory, how the fathers of youthful heroes would protest against so very expensive a habit being imposed upon their sons; what an outcry there would be amongst the married ladies for having such an intolerable nuisance forced upon their domestic economy! How the surgeons would be persecuted with applications for certificates, recommending exemption from the rule, on the score of their constitutions being too delicate to admit of smoking being practised with impunity. Strange infatuation! Great smokers blow away money enough during their career in India to purchase them a moderate annuity; they waste more good health than their pensions can redeem; and shorten the period of their lives several years by this filthy habit."

106. The following are the sentiments of the great Camden:—

Camden, in his *Annals rer. Anglicar*, page 415, thus expresses himself on the smoking of tobacco: "In consequence of this use of it, the bodies of Englishmen, who are so highly delighted with this plant (tobacco), seem to have degenerated into the nature of the *barbarians*, seeing that they are delighted with the same thing which the barbarians use."

107. The following extract, from the leading article of the *Lancet* of April 4, 1857, contains a brief and conclusive summing up of the evidence adduced by the numerous correspondents of that journal on the tobacco controversy, as to the injurious effects of excessive

smoking; and I have annexed, in a continued series, excerpts from the several papers which appeared in that journal, being convinced that the *audi alteram partem* is the only legitimate mode of dealing with the question:

"It is almost unnecessary to make a separate inquiry into the pathological conditions which follow upon excessive smoking. Abundant evidence has been adduced in the correspondence in our columns, of the gigantic evils which attend the use of tobacco. Let it be granted at once, that there is such a thing as *moderate* smoking, and let it be admitted that we cannot accuse tobacco of being guilty of the whole of CULLEN'S 'Nosology,' it still remains that there is a long catalogue of frightful penalties attached to its abuse.

"Let us briefly recapitulate—

"1. To smoke *early in the day* is *excess*.

"2. As people are generally constituted, to smoke more than one or two pipes of tobacco, or one or two cigars daily, is *excess*.

"3. Youthful indulgence in smoking is *excess*.

"4. There are physiological indications, which, occurring in any individual case, are criteria of *excess*.

"We most earnestly desire to see the habit of smoking diminish, and we entreat the youth of this country to abandon it altogether. Let them lay our advice to heart. Let them give up a dubious pleasure for a certain good. Ten years hence we shall receive their thanks."

108 The subjoined extract is taken from a second

communication on the tobacco question, by Mr. Solly, in *The Lancet* of February 14th, 1857:

“The more I think of the tobacco question the more it haunts me. I feel that I cannot do justice to its importance, but I am anxious to add something to my last communication. Every day the subject is forced upon my mind. I scarcely meet a friend or patient who does not bear his testimony to the mischief of which he has been the witness, in his own case or that of some friend, from tobacco.

“The profession have no idea of the ignorance of the public regarding the nature of tobacco. Even intelligent, well-educated men, stare in astonishment, when you tell them that tobacco is one of the most powerful poisons we possess. Now, is this right? Has the medical profession done its duty? Ought we not, as a body, to have told the public that, of all our poisons, it is the most insidious, uncertain, and, in full doses, the most deadly. Why should they not know at once how often it has proved fatal in the human subject, when injected into the rectum in strangulated hernia. I heard, only the other day, that a celebrated surgeon — rather an obstinate one — since dead, lost five cases in succession from the effect of tobacco injected into the bowels.

“It seems almost trifling with the subject, and yet the extreme ignorance which prevails regarding this frightful pest, rendering even trifles weighty in the scale, induces me to remind all smokers, and those of our brethren who madly encourage it, that the first effect of a cigar on any one, demonstrates that tobacco can

poison by its smoke, and through the lungs, just as certainly as through the bowels.

"It is true, that the all-perfect laws of Nature point out to careless man, that he is taking in a poison, and by the sickness, headache, and vomiting which follow, stop for the time the poisonous dose, and avert the fatal end.

"Look at the pale face, imperfect development, and deficient muscular power of the inhabitants of unhealthy malarious districts. They live on, but with only half the proper attributes of life. So it is with the habitual smoker: his system is accustomed to the poison; and so the opium-eater can take an ounce of laudanum for his morning's dram, and feel it not, when the eighth part of it would be fatal to the uninitiated.

"What a blessing it would have been to mankind, if all men had shrunk from this plague of the brain, as did the first Napoleon. One inhalation was enough. In disgust he exclaimed, 'Oh, the swine! My stomach turns. It is a habit only fit to amuse sluggards.'

"It is not, however, to be denied, that when the first poisonous effect has passed off, and the system begins to tolerate it, that tobacco acts as a slight stimulant to many organs. First to the brain, like wine and spirits in small quantities, or inflammation in its very earliest and very transitory stage, it excites to an unnatural degree the natural function of the part. I once knew a young clergyman, who could only write his sermons under the stimulus of tobacco, and there is no question that these discourses were brilliant, eloquent, and most

interesting to listen to; but the end of that man is not yet come.

"In the same way, tobacco is a stimulus to the generative system; but the stimulating effect is much earlier followed by its depressing action; consequently it has long been known, when used immoderately, to extinguish the sexual appetite, and annihilate the reproductive faculty. It is a prolific source of spermatorrhœa. During one week lately, I was consulted by three young men suffering from seminal weakness, in all of whom I could trace this drain to the relaxing, enervating effect of smoking. Happy would it be for them if the abandonment of the vice would at once restore them to health; but no! the evil remains, though the cause is removed—I do not mean remains permanently, because all such cases are ultimately, though sometimes slowly, curable. These three cases are merely a few out of many I have seen of late years.

"I have been asked to produce *facts* in proof of the deleterious effects of tobacco, and facts in abundance shall be forthcoming when I have had a record kept of its effects in my hospital cases; but the facts which I have now by me being private cases, contain details the relation of which would involve a breach of confidence which nothing would justify. No man likes to be held up as a victim of tobacco smoke, though I could name many whose health has been decidedly injured by it. I have seen many cases of amaurosis, both in the incipient and advanced stage, caused by smoking.

"I know a valued servant, in a family where I attend, whose memory was failing him, his face getting yellow,

and his hand shaking; so that those who did not know him attributed his condition to drinking. He abandoned smoking, and in two years was an altered man.

“For above ten years I smoked occasionally; and I am well acquainted with all the soothing, calming, and, for the time, agreeable effect of a cigar, or even short pipe. I left it entirely off about nine years since. This I did, because I believed it impaired my nervous energy; and I have every reason to be satisfied with the change. Since that time my attention has been uninterruptedly directed to the question—Is tobacco smoking positively injurious? The conclusion, therefore, which I have briefly given to the world through your pages, has not been hastily or capriciously formed on a few isolated facts. For the last twenty years I have been the medical examiner of various insurance offices—the Royal Exchange, the Victoria, the Crown, and New Equitable. The two former I still hold. In my examinations, I inquire whether the examinees are in the habit of smoking; and I can now generally tell by the countenance whether they are or not habitual smokers. If I have any doubt on this point, an examination of the fauces decides it. The fauces of the smoker are always more or less injected and rough, presenting the appearance of a piece of dirty red velvet, instead of the pale, pinkish, lilac hue of a healthy throat. The tongue, when smoking is not combined with drinking spirits, as is seldom the case in the upper and middle classes, is usually furred and white, but not otherwise unhealthy.* This condition of the

* The author has had a representation made, illustrating these effects.

fauces may be produced by, and always accompanies the intemperate use of, intoxicating liquors; but then the tongue is unnaturally red; the papillæ at the tip and gustatory papillæ prominent and angry. The condition of the fauces is well worthy the attention of the profession; let them notice it, if possible, in almost every patient that comes before them, and they will soon be struck with the correct index these parts afford of the habits of their possessors. There is one source of fallacy which must, however, be guarded against. This is a temporary vascular injection, induced by the long-continued straining of some people, when requested to take a deep breath for the purpose of showing the fauces. Where, however, the examiner is aware of this fact, he will find no difficulty in distinguishing the temporary blush from the permanent stain. I may here add, by-the-by, that I have occasionally detected habits of intemperance, which the statement of the examinee, and the letters of his referees, gave no note of. In truth, there are many men who habitually drink more than is consistent with longevity, but who never get drunk. Such men invariably declare that they are quite temperate. This condition of the tongue and fauces is not limited to the mouth; it is not a mere local congestion; it exists, more or less, in the stomach, and the rest of the alimentary canal; and hence, I believe, in the otherwise healthy subject, a cigar acts as a moderate purgative, but in typhus as a poison. Can, however, any medical man assert, that it is natural or healthy to take an aperient daily? In the habitual smoker the heart is

irritable, and the person nervous; the pulse frequently intermittent, and irregular in force and frequency.

"In the course of my practice I have met with many individuals who, like myself, have abandoned smoking, because they thought it did not agree with them. Many have done so at my suggestion. I have never found one who does not assert, most positively, that he has been in better health since, and that his intellectual activity has been increased.

"With regard to the arguments that have been adduced in favor of its innocence, I will first advert to the Turks. The mental condition of the Turks, as a nation, would be one of the strongest arguments on my side, were the question not complicated with opium. The fact of their longevity as a race must be proved by statistics, to establish the opinion that smoking does not shorten their lives; but even then it would not prove that smoking is innocuous to Englishmen. My assertion, that it is especially injurious in England, applies to the young men of this country, about whom I am most anxious, because they all live up to fever-point. I believe that the injury inflicted by a pipe of tobacco in the mouth of a poor man, who lives below par rather than above it, cannot be appreciated; but not so a cigar smoked by a man who lives high, and uses his brain much. It matters little whether the mere animal, let him be in the shape of a stock-broker's clerk or a country voluptuary, smokes more or less; but I am sure it is incompatible with great and long-continued intellectual activity, and that amount of high living which appears

almost necessary to health in the imperfect atmosphere of great towns.

“The different mode of living on the Continent and here, renders all arguments drawn from the effect of smoking on foreigners, in favor of the habit, scarcely applicable to the inhabitants of this island; though even in Holland, according to the statement of that interesting writer, Dr. Carlyon, this habit is fatal. It appears to me, that it is our *duty* to discourage any habit that is not conducive to health, and equally *criminal* to encourage a habit which is liable to become a master and a tyrant.

“The gentry and aristocracy of this country must not suppose that because the habit of smoking does not lead in their case to drinking, that therefore it injures them not. Hundreds of gentlemen smoke without drinking more than they believe is conducive to health, and smoking does not in their persons lead to intemperance. But from this fact the habit is the more dangerously insidious. Its ill effects are less easily observed; the habit advances in intensity without their perceiving any objection to it; but the penalty is paid nevertheless, and an untimely grave is often the result.

“One of the best riders to hounds in England, who never smokes, told me that he required much less sleep than his friends, almost all of whom smoke; and that they often remarked with astonishment how fresh he always was in the morning, notwithstanding late hours, champagne, &c. That gallant soldier, General Markham, whose life was sacrificed to his hasty journey from India, never smoked himself, nor would he allow any of

his personal staff to do so, so strong was his opinion of its injurious tendency to the soldier's character.

"I may be mistaken, but I believe that all our greatest men — I mean intellectually — statesmen, lawyers, warriors, physicians, and surgeons, have either not been smokers, or if smokers, that they have died prematurely.

"My friend, Mr. Whitfield, the resident medical officer at St. Thomas's Hospital, speaks most strongly of the injury he has witnessed from habitual smoking, his experience extending over above forty years, in a hospital containing near 500 beds, and relieving some thousands of out-patients every year. He has seen three cases of delirium tremens induced by tobacco smoke alone. In none of these cases had the patients indulged in drinking intoxicating liquors, so that there was no doubt of the single cause of the disease."

109. The following extract is from a paper on the "Effects of Tobacco on Europeans in India," by James Ranald Martin, Esq., in the *Lancet* of 28th February, 1857:—

"My friend, Mr. Solly, having referred to what I have stated in the work on 'The Influence of Tropical Climates on European Constitutions,' respecting the effects of the abuse of tobacco, and believing this subject to be one seriously affecting the public health, I beg leave to state, more particularly and more in detail, some of the results of my observation on this question.

"It is matter of constant observation amongst army surgeons, ever since the peace of 1815, that the habit of cigar-smoking, introduced into this country from Portugal, Spain, and France, by the officers of the British

army, has produced a greater amount of pale, sallow complexions, amongst young officers more especially, than had ever before been observed as resulting from any other cause. Had the morbid complexion been all, the matter would have been of little importance; but here it generally means loss of appetite, defective nutrition, anæmia, and disordered nervous and vascular functions, all in the same individual. My observations lead me altogether to the conclusions of Van Praag, that the operation of tobacco is at first stimulant, and at last depressing, not only in the circulation and respiration, but also on the nervous system; accelerated circulation, increase of respiratory movements, and excessive irritation of the muscular system, being the phenomena first observed. The concluding symptoms are those of general depression, both of animal and organic life, with occasional instances of moral and physical impotency, accompanied by the most mournful results. I am here speaking of what I have witnessed.

“The most ordinary results of excessive use of tobacco are—the most severe forms of irritable dyspepsia, giddiness, disturbed action of the heart, nervous tremors, and cachexia, all amounting occasionally to palsy. Young gentlemen who are in the habit of putting ‘an enemy into their mouths to steal away their brains,’ do not become aware of these facts until it sometimes becomes too late. A highly scientific and distinguished captain of engineers of the Indian army told me—‘All the young fellows of my term who went out to India, having bad habits, are dead, excepting two.’ And what has become of them? ‘They were cashiered!’ Here

the question of tobacco was not immediately in contemplation; but I have no doubt whatever, from the results of my observations in India and at home, that of the habits which led to this sad end, the abuse of tobacco was, amongst these young officers, the most banefully influential.

"I dispute the alleged benefits of even moderate tobacco smoking as a preventive of damp or of malaria; and seriously anomalous symptoms I have seen to arise, in the progress of malarious fevers, from the abuse of it—such symptoms as may lead to the most grave mistakes in the treatment of fevers, if the medical officer be not careful to inquire into the habits of his patient. Of this also I have seen the most emphatic examples. Those who urge the prophylactic benefits of tobacco, carry the habit from the swamps of Burmah into the arid plains of Hindostan, in defiance of geographical differences.

"I can state of my own observation, that the miseries, mental and bodily, which I have witnessed from the abuse of cigar-smoking, and chiefly in young men, far exceeded anything detailed in the 'Confessions of an Opium Eater;' and I feel assured that the abuse of tobacco, however employed, may be classified amongst those habits which produce chronic poisoning."

110. In the *Lancet* for 14th March, 1857, page 281, there is an appalling account of the death of a woman who had become paralytic, apparently from excessive smoking of tobacco, and whose death was occasioned by her clothes having taken fire from her pipe.

111. In the *Lancet* for 28th February, 1857, Mr. Higginbottom, of Nottingham, says :

"After fifty years of most extensive and varied practice in my profession, I have come to the decision, that smoking is a main cause of ruining our young men, pauperizing the working-men, and rendering comparatively useless the best efforts of ministers of religion." The proverbial drunkenness of our countrymen can only be arrested by laying the axe at the root of its superinducing cause, the thirst-creating power of tobacco. 'Penury and crime,' says a medical temperance reformer, 'are brought on by drinking, to supply moisture to the system, after it has been drained by spitting away the flourishing saliva. Hence drunkenness in the masses.'

112. Extract from an article by J. Pidduck, M. D., in the *Lancet* of 14th February, 1856 :—

"As physician to a dispensary in St. Giles's during sixteen years, I had extensive opportunities of observing the effects of tobacco upon the health of a very large number of habitual smokers. The extraordinary fact is this: that leeches were killed instantly by the blood of the smokers, so suddenly that they dropped off dead immediately they were applied; and that fleas and bugs, whose bites on the children were as thick as measles, rarely if ever attacked the smoking parent. It may be said: 'But why may not this poisonous effect upon leeches, fleas, and bugs, be owing to gin, and not tobacco?' The answer to this objection is, that the Arabs and Bedouins, who drink neither wine nor strong drink, are protected from the onslaught of the insects, which

swarm in their tents, by poisoning their blood with tobacco, whilst the wine and spirit-drinking Europeans are attacked without mercy. What is so fatal to insect life, cannot be otherwise than most formidable to the life of persons whose blood is thus poisoned. If the evil ended with the individual who, by the indulgence of a pernicious custom, injures his own health, and impairs his faculties of mind and body, he might be left to his enjoyments—his '*Fools' Paradise*'—unmolested. This, however, is not the case: in no instance is the sin of the father more strikingly visited upon his children, than the sin of tobacco smoking. The enervation, the hypochondriasis, the hysteria, the insanity, the dwarfish deformities, the consumption, the suffering lives and early deaths of the children of inveterate smokers, bear ample testimony to the feebleness and unsoundness of the constitution transmitted by this pernicious habit.

"How is it, then, that the Eastern nations have not, ere this, become exterminated by a practice which is almost universal? The reply is, that by early marriage, before the habit is fully formed, or its injurious effects decidedly developed, the evil to the offspring is prevented; but in this country, where smoking is commenced early, and marriage is contracted late in life, the evil is entailed in full force upon the offspring. Adulterations of all kinds are bad enough, but the adulteration by a narcotic—poisoning the life at its source, the breath; and, in its course, the blood—is worse than all. By these adulterations, the health of the community is injured; by this, a man injures his own health and that of his children. Ought not this

consideration to restrain every wise and good man from contracting or continuing such a senseless and destructive habit of self-indulgence? For old men, smoking may be tolerated; but for young men and boys, it cannot be too severely reprobated."

113. The following extract is from the article, "Is Smoking Injurious?" in the *Lancet* of 31st January, 1857, by Dr. Johnson:

"What is the testimony of facts? Why, for one inveterate smoker who will bear testimony favorable to the practice, ninety-nine such, of the candid of these, are found to declare their belief that this practice is injurious; and I scarcely ever yet met with one habitual smoker who did not, in his candid moments, regret his commencement of the habit.

"A few weeks since, I was summoned to attend a gentleman in the country. On my arrival I found him complaining of headache, nausea, languor, loss of appetite and sleep, and inability to rise in the morning; his expression was anxious, haggard, and nervous; his complexion sallow and jaundice-looking; his tongue highly furred, and teeth incrustated with a dirty greenish-yellow deposit; his breath, which was exceedingly offensive from the odor of tobacco, revealed to my mind the nature of the evil. On my inquiry, he informed me that for many years he had indulged rather freely in the use of tobacco, declaring, at the same time, that ever since his apprenticeship to smoking, the pernicious habit had gradually and insidiously crept upon him, till at length it became confirmed. I persuaded him to desist from its indulgence, and succeeded; but he found the task a

terrible one, so enslaving is the habit. After a short time, however, he succeeded in conquering the appetite. Many of the symptoms have entirely disappeared, and he is now considerably improved. Is not this case, in the experience of most medical men, the type of thousands more?

"It is a certain fact, that devoted smokers are liable to both constitutional and local disorders of very serious characters. Among the former, we notice giddiness, sickness, vomiting, dyspepsia, diarrhoea, angina pectoris, diseases of the liver, pancreas, and heart, nervousness, amaurosis, paralysis, apoplexy, atrophy, deafness, and mania. Amongst the latter, ulceration of the lips (not unfrequently of a syphilitic character, from the morbid matter introduced into the healthy subject, by smoking cigars or pipes which have been used by diseased persons), ulceration of gums, cheeks, mucous membrane of the mouth, tonsils, throat, etc.

"Most of these results I have selected from authors of some *locus standi*—amongst whom I may mention Drs. Prout, Bright, Laycock, Radcliffe and Ranking, Pereira, Orfila, Trousseau, Johnstone, Sir B. Brodie, and Professor Lizars. Dr. Taylor, in his valuable work on Poisons, says: 'That a poisonous substance like tobacco, whether in powder, juice, or vapor, cannot be brought in contact with an absorbing surface like mucous membrane, without in many cases producing disorder of the system, which the consumer is probably quite ready to attribute to any other cause than that which would render it necessary for him to deprive himself of what

he considers not merely as a luxury, but an article actually necessary to his existence.'—p. 787.

"The quantity of this poisonous weed entered for 'home consumption' in the eleven months ending November, 1856, was 29,776,082 lbs. The deleterious effects which this enormous amount of tobacco produced upon its victims, both physically, mentally, and morally, admits of no possible calculation."

114. Dr. Pugh, in the *Lancet* of 21st February, 1857, says:

"I have read with interest the communications of Mr. Solly which you have recently published; and having been favorably circumstanced, during nearly twenty years' practice in the Australian colonies, for observing the pathological conditions arising out of the habitual use of tobacco, I beg to add a few facts to those already before the profession.

"The life of an Australian squatter, without the settled districts, is one of an exceedingly monotonous character. He passes into positions far removed from all intercourse with intelligent companions; he enjoys few of the ameliorating circumstances which give a charm to social life. His home is situated in the solitude of the vast plain in which his flocks are fed, and he is visited only by those who are in his employ. For the year together, no opportunity occurs for interchange of thought with educated minds. Thus circumstanced, it is not surprising that an occasional instance is presented of men becoming slaves to an agent by which they are enabled to pass in dreamy stupor a portion of the weary time of their voluntary banishment. Unfortunately, the

occasional pipe of tobacco is soon merged into a life, where no moment is tolerable in which the narcotic vapor is withheld. His morning smoke is commenced while in his bed; his day is passed in a cloud; and the pipe accompanies him when retiring to rest, to be laid aside when overpowering sleep prevents its further use. The first visible effects of such a life are a disregard for cleanliness and personal appearance. The features become bloated, and the lips lose their healthy hue. The cheerful and active movement has given place to a heavy listlessness. The character of the man has undergone a change. When roused, he attends to business, but rapidly returns to a state of abstraction. Dyspeptic symptoms annoy him, and soon the heart becomes irritable, and the pulse is irregular. Hypochondriasis in its worse forms is presented, accompanied at times with a suicidal tendency; and I have known individuals in this condition rush to the town, dreading the consequences of a longer continuance in their life of solitude. The brain and ganglionic system become involved, and I have seen softening, accompanied by paralysis. Amaurosis is not an unfrequent indicator of the existing nervous prostration. When under treatment, whether from disease or accident, the inveterate tobacco-smoker quickly presents evidence of the constitutional operations of the narcotic. Typhoid symptoms show themselves at a very early stage, and smoking delirium is present, which require to be combated by active tonic remedies.

“No alcoholic beverage reaches the distant station. Tea and tobacco are the luxuries of bush life; hence a

facility is afforded for connecting the physiological effects with their exciting cause — tobacco!

“If such be the consequences of excessive and continued doses of narcotine, can we suppose that no mischief will accrue to the children of this country who are to be daily seen recklessly enjoying the pipe or the cigar? I fear a healthy nutrition is incompatible with the proceeding, and think, with Mr. Solly, that the future happiness of the people of England may be jeopardized by a practice, which intercourse with our continental neighbors has rendered so popular.”

115. Mr. M'Donald, Surgeon to the Garnkirk and Heathfield works, says:

“Having paid some attention to the effects of tobacco-smoking on the system, I have noted down a few observations made over a wide field.

“Sailors and navvies smoke more than any other class. The sailor uses from 8 oz. to 16 oz. of tobacco per month; the navvy, 8 oz. or 10 oz.; but part of this is chewed. Bad taste in the mouth, with sometimes an angry, irritable point on the tongue, lips, or fauces, which prevents him from smoking for a few days, are the only bad results I have observed. It does not appear to affect the nervous system of either of these classes. The miner uses above 8 oz. per month. Often breathing an impure air, the tone of his system is lowered, and then tobacco exerts its baneful influence on him. He is subject to dyspeptic, bilious, and nervous attacks, while those who do not smoke are invariably the healthiest.

“Now, let the sailor or navvy take to sedentary em-

ployment, and in a short time tobacco-smoking begins to affect him as it does the man of sedentary habits. His hand begins to shake, his mouth feels clammy and he has a bad taste in it; he loses to a great extent his fine gustatory sense; his appetite becomes capricious; he feels languid and indolent; his memory becomes confused; he has cardiac disturbance; and spermatorrhœa, with all its evil results, not unfrequently comes on from smoking. A strong constitution may resist it for a few years, but it ultimately gains the victory. It is generally supposed, that those who labor in the open air are exempted from its bad effects. This is only the case in certain conditions. They must be well fed. On the laborer with low wages, it exerts its baneful influence—first, from its own effects; secondly, from squandering a large portion of that which should go to nourish him, whereby he is still further debilitated.

“I may mention a curious fact, not generally known, but which requires only to be tried to be proved, viz., that no smoker can think steadily or continuously on any subject while smoking. He cannot follow out a train of ideas—to do so he must lay aside his pipe.

“On woman it takes a sad hold. She soon becomes lazy and indolent, of dirty habits, and makes bad recoveries from her confinements; her children at the breast are liable to erysipelatous and other skin diseases.

“In Scotland, in addition to the effects of tobacco, may be added those of its adulterations, viz., copperas, salt of tartar, saltpetre, and sand. The salts cause the tobacco to feel intensely hot and acrid, irritating mostly all the mucous membranes. These adulterations are

added to give color, and by retaining a large amount of water, to cheat both revenue and consumer. It gives rise to that form of caries of the teeth which commences by internal decay. The tooth being unduly stimulated by the oft-applied heat, a bony deposit takes place on the fangs, the canals are partially or wholly obliterated, and the supply of nourishment being cut off, some day, while perhaps eating a piece of soft bread, the crown gives way, and the tooth rapidly crumbles down. Sand is used to a very great extent, finely sifted; it perhaps is harmless, but affords a good illustration of how openly adulteration can be carried on in a free country.

“In conclusion, I may state, that the germs of premature decay, which abuse of tobacco is spreading through the country, will ultimately, in my opinion, prove more overwhelming than even the serious abuse of intoxicating liquors.”

116. The following is an extract from a communication in the *Lancet*, by Walter Tyrrell, M. R. C. S.

“More especially would I direct attention to the depressing influence of tobacco on the sexual powers. I feel confident, that one of the most common, as well as one of the worst, of its effects, is that of weakening, and in extreme cases, of destroying the generative functions. I can illustrate this by a case which came under my notice recently, and one which I believe to be by no means rare. My attention has just been directed to the subject by Mr. Lizars’ admirable paper, when a gentleman called to consult me, as he found himself impotent. He was a young man, in apparently good

health, and his generative organs showed no signs of disease or decay. He stated that it was only during the last few months that he had found his desire for connection gradually decreasing, and that when he did attempt it, his efforts were altogether futile, or only consummated after a long interval. On inquiry into the supposed cause, amongst other matters, I found he had latterly become a great smoker, sometimes smoking a dozen cigars a day. Without particularly directing his attention to that point, I ordered him to confine himself to one cigar a day, at the same time ordering him a 'placebo.' At the end of a fortnight he called again, saying he was very much improved; he had greater desires, and more power of satisfying them. I now told him he might resume his smoking, but continue the medicine, to which he attributed all the benefit, telling him that he need not call again unless he found himself worse. In a few days he returned with exactly the same symptoms as at first. I was now convinced of the cause, and ordered him entirely, though gradually, to leave off the habit. He was at first unwilling to submit; and it was not until I had repeated my former experiment, with, if possible, more positive results, that he consented. He has, I am glad to say, perfectly carried out his good resolutions, and with a perfectly successful result.

"This case, I think, satisfactorily proves that, in some persons at least, tobacco is not the harmless luxury many would make it; and I am sure this case has many parallels."

117. Statistics of France, from *Lancet* of 14th February, 1857.

“From 1851 to 1856, France, according to the *last* census, has gained *only* 256,000 inhabitants. In the same number of years, from 1841 to 1846, the increase was 1,200,000. The difference is enormous.” — (See *The Times*, January 29, 1857.)

118. The following extract is from an account by Mr. Erichsen, in the *Lancet* of 21st February, 1857, of a case of slow poisoning by snuff containing lead :

“I was particularly struck with the appearance of the hands and arms, which were lying powerless on the coverlid of the bed. There was marked ‘wrist-drop’ of both arms—the hands hanging flaccid and at right angles with the forearms, without the patient being able to extend or raise them in the smallest degree. There was, however, some slight power of extension left in the fingers, especially in those of the left hand. Though unable to extend the fingers, raise the hand, and scarcely having power to elevate the arm, Mr. A. B. could *flex* the fingers pretty firmly, so as to give a tolerably good grasp to whatever was put into his hand. The index finger of the right hand seemed to be the most affected, and was permanently flexed.

“There was a very marked degree of wasting of the whole mass of the extensor muscles of the forearm, so that a longitudinal hollow corresponding to the interosseous space was perceptible down the whole length of the forearm, and a very deep and marked depression in the interspace between the first and second metacarpal

bones. The hands were quite powerless, and the patient was unable to render himself the slightest assistance.

"The tongue was pale and flabby; and, on examining the gums, I found a deep blue-black or leaden colored line around the teeth, more marked about the molars.

"Digestion was much impaired. Appetite capricious, with much flatulence, and occasional attacks of constipation, with colicky pains.

"On examining Mr. A. B., I was at once struck by the very marked 'wrist-drop,' more complete than I had ever seen before; the limitation of the paralysis to the extensors, which were greatly wasted; the existence of a blue line around the teeth; and the occurrence of occasional attacks of constipation and colic, together with flying pains in the fleshy parts of the body, with absence of all articular inflammation. These symptoms led me to the conclusion, that Mr. A. B. was suffering from saturnine paralysis, and that he had been slowly poisoned by lead.

"In the course of my inquiries, however, I found that he took snuff in considerable quantities. I accordingly emptied his box of its contents, and took them up to town with me, with a view to further examination. The snuff was analyzed by Professor Williamson, who immediately detected in it a considerable quantity of lead; and another supply having been procured from the shop at which Mr. A. B. was in the habit of purchasing it, was subjected to analysis by Dr. Garrod, who readily detected large quantities of the metal in it."

119. When snuff is packed "in boxes lined with very

thin lead, which are much used by the Paris retailers, a chemical action takes place, the result of which is to charge the snuff with subacetate of lead. Mayer of Berlin traces several deaths and cases of 'saturnine paralysis' to the patients having taken snuff from packets, the inner envelope of which was thin sheet-lead, in constant contact with the powdered weed."—*From the Athenæum, 2d October, 1858.*

120. Dr. Bucknill, of the Devon County Asylum, in his communication to the *Lancet*, 28th February, 1857, argues that "the preponderance of lunatics of the female sex, is conclusive evidence against the theory that tobacco either causes or predisposes to mental disease." But the accuracy of Dr. Bucknill's statistical argument is liable to many objections. It may be differently explained; and I have tables furnished to me on the subject, which I could adduce, if necessary, establishing an opposite conclusion. At all events, Dr. Bucknill seems to have overlooked the many powerfully exciting and predisposing causes rendering females liable to attacks of insanity.

121. A scientific physician, on reading Dr. Bucknill's communication in the *Lancet*, observed that "Dr. Bucknill blows hot and cold on the tobacco blast;" and on Dr. Pretty's paper in the same number of the *Lancet*, that "Dr. Pretty adduces *pretty* proofs of contradiction and absurd reasoning."

122. In the Asylum Journal of Mental Science for October, 1857, vol. iv. No. 23, edited by Dr. Bucknill, there is a statistical account or memorial drawn up by a Miss Dix, of the Hospitals for the Insane in the

United States, from which I extract the following: "In the Massachusetts State Hospital, in 1843, there were eight cases of insanity produced by the abuse of tobacco."

123. Dr. Kirkbride, in his report of the Pennsylvania Hospital for the Insane for 1849, states that "two cases in men and five in women were caused by the use of opium, and four in men by the use of tobacco." "The use of tobacco," continues he, "has, in many individuals, a most striking effect on the nervous system; and its general use in the community is productive of more serious effects than is commonly supposed."

124. The following interesting case has been sent me by a medical friend, the ordinary attendant on the patient. A gentleman about thirty-five years of age, long addicted to drinking, smoking, and chewing, became quite fatuous, and subject to fits closely resembling epilepsy. He was removed to a lunatic asylum, where the ardent spirits were first given up; but no change for the better for six months. The smoking tobacco was then reduced, when some little improvement took place; and when both the smoking and chewing tobacco were reduced, a great amendment followed; and when totally given up, the fits ceased, and he became perfectly sane. It is upwards of two years since he became rational and free from the fits; and when interrogated, what was the cause of his mental alienation and fits? he unhesitatingly ascribes them to the use of tobacco.

125. The next case corroborates the effects of tobacco on the nervous system. A strong, brawny carter, thirty years of age, states that five years ago he was struck

speechless, and paralytic of his left side, which he ascribed to smoking tobacco, generally half-an-ounce daily, since he was a boy. He lay powerless for some weeks among his friends, being unable to earn his livelihood. In twelve months, he so far recovered as to lead a horse, and has since slowly recovered. Still, he cannot grasp with his left as with his right hand. He "threw away tobacco forever," from the day of his paralytic attack. October 9th, 1858.

126. Dr. Carlyon, in his "Early Years and Late Reflections," writes as follows:

"What can be more deleterious than tobacco. Many an honest Deutscher have I seen smoking himself into the grave!

'Rauch — Rauch — immer Rauch!'

the countenance pale and haggard; the frame emaciated; the propensity to smoke irresistible!

'A pipe! a pipe! My heart's blood for a pipe!'

Neither is there need of much physiological acuteness to account for the bad effects of this pernicious habit on the health. Tobacco is a very powerful narcotic poison. If the saliva, the secretion of which it provokes, be impregnated with its essential oil, and so swallowed, the deleterious influence is communicated directly with the stomach; or if, as more frequently happens, it is ejected, then the blandest fluid of the human frame—that which, as a solvent and diluent, performs an office in digestion secondary only to the gastric juice itself—is lost. Even snuff, my old friend Aternethy used to say, fuddles the nose; but the fumes of tobacco pos-

sess a power of stupefying all the senses and all the faculties, by slow but enduring intoxication, into dull obliviousness.

"I recollect reading the address of a professor, in some American University, to his pupils, on the bad effects of tobacco. This address, sensible and spirited, seemed to come from the professor's very heart. He deprecated, in the most forcible manner, the practice of smoking, which had been recently taken up, and said, 'That prior to the period when pipes were to be seen in the mouth of every student, the youth of the University were as different in their looks from the individuals with whom he was then surrounded, as health from disease.'"

He gives the following translation of an epigram, by Petrus Scriverinus, on a tobacco-pipe :

"Old men and young, beware! beware!
A pipe of tobacco is Satan's snare;
Not surer the net for birds is spread,
By the pipe's sweet note to capture led,
Than the whiffs which the lovers of smoking take,
Are sure to lead to the Stygian lake."

127. Dr. Taylor, who, as an accurate analyst, and an enlightened medical jurist, has deservedly earned a name of the highest authority in all medico-legal questions, in his work on Poisons, says :

"A poisonous substance like tobacco, whether in powder, juice, or vapor, cannot be brought in contact with an absorbing surface, like mucous membrane, without in many cases producing disorder of the system, which the consumer is probably quite ready to attribute

to any other cause than that which would render it necessary for him to deprive himself of what he considers, not merely a luxury, but an article actually necessary to his existence."

128. In the Half-yearly Abstract of the *Medical Sciences*, vol. i., p. 73, there is an interesting collection of cases of disease produced by tobacco. They show the terrible effect of the plant on the digestive and nervous systems. The first is that of a young American lawyer, who "used (the weed) freely, by smoking, chewing, and snuffing." He labored under "acidity, cardialgia, gastrodynia, palpitation of the heart, giddiness, vertigo, and fulness of the head, with the most profound gloom; keenly alive to every feeling, he was in constant fear of death, yet tempted to commit suicide to escape from a life more intolerable than death itself. He had a firm conviction in his mind, that he should die from apoplexy." He had frequent shocks in the epigastrium, both during the day and during the night. When he threw away tobacco for ever, all his dreadful feelings "vanished as if by magic." He ultimately became "an able and talented member of the bar, in the possession of good health, spirits, and prosperity."

129. His sister, thirty-nine years of age, a married lady, mother of two children, had smoked and snuffed tobacco for fifteen years—for eight years had those peculiar shocks at the epigastrium, resembling those produced by electricity, with a sinking sensation at the pit of the stomach, cardialgia, acid eructations, a sense of rushing of blood to the head, palpitations, sleeplessness, and startings when first falling into slumber. These

increased, and then tenderness of the spine along its whole length, rigidity of the limbs, costiveness, derangement of the catamenia, &c. Seeing the good effect of abandoning the use of tobacco in her brother, she made the same experiment in part herself, and with the same marked relief from many of the symptoms—she ultimately recovered a comfortable state of health. She has frequently ventured upon a moderate use of tobacco, but after using it a while, she experiences her old feelings, and then quickly abandons it.

130. Dr. Laycock, Professor of the Practice of Physic in the University of Edinburgh, a physician not less distinguished for great erudition than for his practical experience, and skill, and tact, in the detection and treatment of disease, published, in the *Medical Gazette* for October 2d, 1846, a paper, so corroborative of my views regarding tobacco, as to render an apology for publishing the following extract from it wholly unnecessary. He remarks:—

“It is only by personal observations made during the last two or three years, that I have become fully aware of the great changes induced in the system by the abuse of tobacco, and of the varied and obscure form of disease to which especially excessive smoking gives origin; and I now propose to state some of the results at which I have arrived.

“The consequences of smoking tobacco are manifested in the buccal and pharyngeal mucous membrane and their diverticula; on the stomach, the lungs, and the heart, and on the brain and nervous system. With regard to these consequences, it may be generally stated

here, that they vary according to the quantity of tobacco smoked, and according to the pathological conditions and peculiarities of the individual himself. Some persons will smoke a very large quantity before certain symptoms arise, while others experience these with a very small quantity. The amount consumed by habitual smokers varies from half an ounce to twelve ounces per week. The usual quantity is from two to three ounces. Inveterate cigar smokers will consume from four to five dozen per week of the lighter kind of cigars, as Manillas, Bengal cheroots, etc.

“The first and simplest morbid result of excessive smoking, is an inflammatory condition of the mucous membrane of the lip and tongue, and this sometimes ends in a separation of the epithelium. Then the tonsils and pharynx suffer, the mucous membrane becoming dry and congested. If the throat be examined, it will be observed to be slightly swollen, with congested veins meandering over the surface, and here and there a streak of mucus. The inflammatory action also extends upwards into the posterior nares, and the smoker feels from time to time a discharge of mucus from the upper part of the pharynx, in consequence of the secretion from the mucous membrane of the nares collecting within them. Sometimes the anterior nares suffer, but in this case the irritation is not marked by increased secretion so much as by tickling and itching within them. The irritation will also extend to the conjunctiva (and I am inclined to think from the nares, and not by the direct application of smoke to the eye), and the results are, heat, slight redness, lachrymation, and a peculiar spas-

modic action of the orbicularis muscle of the eye, experienced, together with intolerance of light, on awaking from sleep in the morning.

“I think the frontal sinuses do not escape; for I find that one of the symptoms, very constantly experienced after excessive smoking, is a heavy, dull ache, precisely in the region of these sinuses. But descending along the alimentary canal, we come to the stomach, and here we find the results to be, in extreme cases, the symptoms of gastritis. There is pain and tenderness on pressure of the epigastrium, anorexia, nausea on taking food, and a constant sensation of sickliness, and desire to expectorate.

“The action of the heart and lungs is impaired by the influence of the narcotic on the nervous system, but a morbid state of the larynx, trachea, and lungs, results from the direct action of the smoke. The voice is observed to be rendered hoarser, and with a deeper tone; sometimes a short cough results; and in one case that came under my notice, ulceration of the cartilages of the larynx was, I felt quite certain, a consequence of excessive use of tobacco. This individual had originally contracted the habit of smoking when a sailor, and it had become so inveterate, that he literally was never without a pipe in his mouth except when eating or sleeping. If he awoke in the night he lighted his pipe; the moment he finished a meal he did the same. It is only in extreme cases like this that the inference can be fairly made as to the morbid results of the habit, because there are so many other causes of disease to be estimated at the same time. This particular instance has, how-

ever, during my experience, been corroborated by others of a like kind; and I have come to the conclusion that inflammation and ulceration of the larynx in men are almost exclusively peculiar to the slaves of excessive tobacco smoking.

“Hæmoptœ is another morbid condition distinctly traceable to this habit. The patient experiences a slight tickling low down in the pharynx or trachea, and hawks up rather than coughs up a dark grumous-looking blood. I have not been able to ascertain whence this comes. I have known it to flow out of the patient’s mouth during the night, or to be effused shortly after lying down. It is a symptom worthy especial notice, however, because it gives great alarm, and may be readily mistaken for pulmonary hæmoptysis, or an expectoration of blood.

“The action of tobacco smoking on the heart, so far as I have observed, is depressing. The individual who, from some peculiarity of constitution, feels it in this organ rather than elsewhere, usually complains of a peculiar uneasy sensation about the left nipple—a distressing feeling—not amounting to faintness, but allied to it. In such an example no morbid sound can be detected, but the action of the heart is observed to be feeble, and slightly irregular in rhythm; yet not always so in the same person. An uneasy feeling is also experienced in or beneath the pectoral muscles; but oftener, I think, on the right side than on the left.

“On the brain the action of tobacco smoking is sedative. It appears to diminish the rapidity of cerebral action, and check the flow of ideas through the mind. This, I think, is a certain result; and it is in consequence

of this action, that smoking is so habitual with studious men, or men of contemplative minds. The phrases, 'a quiet pipe,' or 'a comfortable cigar,' are significant of this sedative action.

"There are a few facts which I would now state generally, and which appear as secondary results of smoking. Constipation and hæmorrhoids are often experienced by inveterate smokers. Acne of the face I have observed to be excited and kept up by the habit, and to disappear with the discontinuance of the latter. Blackness of the teeth and gum-boils are not uncommon results. There is also a sallow paleness of the complexion, an irresoluteness of disposition, a want of life and energy, to be observed occasionally in inveterate smokers, who are content with smoking; that is to say, who do not drink. I have suspected also that it has induced pulmonary phthisis.

"The nervous system, as I have said, has peculiarly suffered; and thence have arisen obtuseness in the functions of the several senses, irritability, indecision, and loss of courage, or of determination of action, weakness of the muscles of voluntary motion, and depravity of the secretions. Particularly have I observed the buccal membrane (in smokers) to become vascular, swollen, irritable, and prone to hæmorrhage. I have never observed an exception to the fact, that in smokers the voice has deepened in tone (I suppose from relaxation), or become hoarse or oppressed through excessive mucous secretion. Many an irritable nervous cough, without increased secretion from the tracheo-bronchial membrane, and many a cough dependent upon increased secretion, have I

known to follow the frequent use of tobacco in smoking. I believe it to be a great antagonist of the functions of the nervous system, especially in its relations to the organs of sense, of reproduction, and of digestion. I think I have known it to produce perfect atony, with all its train of consequences. I have known many instances in which I was unable to prove that the ordinary use of tobacco did any harm; I have known many more in which I could prove that it did do harm; and I have not known any good from it that might not have been obtained from less objectionable means.

"It will be seen that Dr. Wright corroborates my observations in several particulars; and although I am not at all desirous that this communication should be considered as a 'counter-blaste' to tobacco, I think the inveterate habit of smoking, snuffing, or chewing that drug, is worthy the special notice of physicians and practitioners in medicine in general, as a very frequent but unconsidered and unthought-of cause of disease. I am quite certain, indeed, that if the practitioner habitually direct his attention to the subject, he will find that many obstinate and difficult cases may be elucidated, by applying and extending the views detailed as well by Dr. Wright as myself.

"Gastric disorders, coughs, and inflammatory affections of the larynx and the pharynx, hæmoptœ, diseases of the heart, and lowness of spirits, are the principal diseases in which the pathological results of the habit are to be looked for. The color of the teeth, a pearly blueness of the lips, a slight trembling of the hands, and a quiet, passive expression of countenance, are the most

usual marks of the habit itself, and when present in any obstinate or anomalous disease, whether of the respiratory, circulating, alimentary, or nervous system, would warrant a special inquiry as to the habits of the patient in the use of tobacco. In all cases, the quantity of snuff used, or tobacco smoked, per diem or per week, should be ascertained, as patients are apt to say they only smoke a little; meaning, if pressed, that they smoke from half an ounce to an ounce of tobacco per diem—and the same with snuff.”

131. The following paper, published by the British Anti-Tobacco Society, was written by a physician of high standing and extensive practice in London:—

“The habit of smoking tobacco has given rise to the following ill effects, which have come under my observation in numerous instances, and that of all the medical men with whom I am acquainted. I shall state the bad effects of this poison categorically, premising that chewing tobacco is the most injurious, smoking not much less so, and snuffing least, although also most decidedly injurious. As smoking holds a middle position of these three injurious habits, or vices, especially when adopted by the young, I shall therefore make it represent the others.

“1. Smoking weakens the digestive and assimilating functions, impairs the due elaboration of the chyle and of the blood, and prevents a healthy nutrition of the several structures of the body. Hence result, especially in young persons, an arrest of the growth of the body; low stature; a pallid and sallow hue of the surface; an insufficient and an unhealthy supply of blood: weak

bodily powers; and, in many instances, complete emasculation, or inability of procreation. In persons more advanced in life, these effects, although longer in making their appearance, supervene at last, and with a celerity in proportion to the extent to which this vile habit is carried.

"2. Smoking generates thirst and vital depression; and to remove these, the use of stimulating liquors is resorted to, and often carried to a most injurious extent. Thus two of the most debasing habits and vices to which human nature can be degraded, are indulged in to the injury of the individual thus addicted, to the shortening of his life, and to the injury and ruin of his offspring, if, indeed, he still retain his procreative powers—a very doubtful result—and the more doubtful when both vices are united in one person.

"3. Smoking tobacco weakens the nervous powers; favors a dreamy, imaginative, and imbecile state of existence; produces indolence and incapability of manly or continued exertion; and sinks its votary into a state of careless or maudlin inactivity and selfish enjoyment of his vice. He ultimately becomes partially, but generally paralyzed in mind and body—he is subject to tremors and numerous nervous ailments, and has recourse to stimulants for their relief. These his vices cannot abate, however indulged in, and he ultimately dies a drivelling idiot, an imbecile paralytic, or a sufferer from internal organic disease, at an age many years short of the average duration of life. These results are not always prevented by relinquishing the habit, after a long continuance or a very early adoption of it. These

injurious effects often do not appear until very late in life.

"4. The tobacco smoker, especially if he commences the habit early in life, and carries it to excess, loses his procreative powers. If he marry he deceives his wife, and disposes her to infidelity, and exposes himself to ignominy and scorn. If, however, he should have offspring, they generally either are cut off in infancy, or never reach the period of puberty. His wife is often incapable of having a living child, or she suffers repeated miscarriages, owing to the impotence of her husband. If he have children, they are generally stunted in growth or deformed in shape: are incapable of struggling through the diseases incidental to children, and die prematurely. And thus the vices of the parent are visited upon the children, even before they reach the second or third generation. I have constantly observed, that the children of habitual smokers are, with very few exceptions, imperfectly developed in form and size, very ill or plain-looking, and delicate in constitution. These imperfections are most manifest in the female offspring, for the procreative inability being chiefly in the husband, and less in the wife, unless from disgust at his habits, and the female generally deriving the chief characteristics of form, feature, and constitution, from the male parent, the female child is more or less the victim of his vices and debased habits. If, therefore, ladies sufficiently value their own happiness, and the health and happiness of their families, or desire what all desire "who love their lords," they ought not to marry smokers; nor should they trust the promises of reforma-

tion which he may make, as they are very seldom kept. Persons who feel that smoking is injurious to them in any way whatever, or who are desirous of having instructions to enable them to relinquish the habit, should have recourse to the best medical advice to enable them to recover from existing injurious effects, and to prevent the accession of others which may supervene at some future period, even although the habit has been relinquished."

132. Professor Siebert, of Jena, in his "Treatise on Diseases of the Belly," 1855, gives the following striking case:—

"Advocate T——, in B——, a robust, muscular, and athletic man, was under an affection of the spine from 1840 to 1845. He had peculiar sensations in different parts of the spinal cord, which, according to the changing central seat, produced radiating effects throughout the system. When this central point mounted up to about the seventh vertebra of the neck, he experienced a numbness in the forearms and hands, with a sense of pressure in the breast, and a short, broken cough. If the pain was in the upper part of the spine, then there were other eccentric symptoms, such as palpitation of the heart. If lower down in the spine, then pain in the stomach, want of appetite, and vomiting. These gastric symptoms disappeared when the pain went down towards the cauda equina, and then there was disturbance in the sacral regions, cramp in the sphincter ani, nightly pollutions, sickly appearance, and hypochondriacal voice. When the entire spine was affected, there were disturbances in the lower extremi-

ties; not properly palsy, but devious movements, and difficulty in standing steadily or moving directly, so that he could not easily get over a stone—an effort causing him anxiety; and he was obliged often to hold by the wall through giddiness. Sometimes, when the pain went into the left hemisphere of the brain, the patient saw objects double. Various remedies were tried, preparations of iron, etc., but without effect. The patient was a smoker; and Professor Siebert discovered that he was uniformly worse after smoking cigars. With much difficulty the doctor got him to abstain from this practice for a short time, as a trial; and the consequence was a relief from the symptoms of which he had so long complained. He got gradually better, and ultimately regained his health. Subsequently, the professor met his patient in the inn called the Three Crowns, in B——; when, in the midst of their enjoyment and conversation, the latter, with somewhat of a pitiful look, inquired of his doctor if he might once again enjoy the luxury of a cigar. The doctor forbade; but the advocate insisted, and took his own way. After the second cigar, he became pale, speechless, and hollow-eyed, left his seat and went out. The doctor followed him, and heard him confess that he felt come upon him the whole symptoms of his former disease. He was again treated with medicine; and, having recourse to no more cigars, he was again restored to health—a clear proof, as the professor says, that the tobacco was the cause of his ailment.”

133. I was consulted lately by the father of a young barrister, who was ruining his prospects by smoking to-

bacco. The father writes that his son is smoking tobacco night and day, converting day into night, and having no appetite: as for his legal studies, they have fled for ever.

134. Mr. Turton, in an interesting communication on the evil effects of tobacco smoking, as read before the Royal Medical Society, on 20th February, 1857, says:

"I will adduce another instance of the evil effects of excessive smoking on the nervous system, as affecting the procreative powers—I allude to the case of an eminent author in the literary world, of the highest graphic historical writing, who from his earliest manhood has daily handled the quill, and between whose lips cigar has followed cigar in endless succession. He married when young; and although not yet sixty years of age, and of rather abstemious habits, it is well known that, for upwards of the last twenty years—such have been the effects of mental excitement from intense study, and of cerebral affection and influence on the sensorial nerves from excessive and persistent tobacco smoking—all marital connection between his wife and him has been suspended; that the poor woman might have been, during that period, as well banished or divorced, she has been so wholly deprived of her lawful pleasures."

"Professor Millar," says Mr. Turton, "mentioned on Wednesday, 18th February, 1857, to the gentlemen of his class, an interesting case of a gentleman about thirty-five years of age, who is suffering from paraplegia, caused by tobacco smoking. When this gentleman discontinued smoking for a few days, a marked improvement of the symptoms supervened; but the moment he

resumes his evil habit, the attack comes on as severe as ever."

Will he be able to do so always? Will not organic disease ultimately follow such attacks of functional disorder?

135. I am informed by a gentleman, whose name I am not at liberty to mention, that a popular writer of the present day married a lady, and that immediately after his marriage he proposed separate beds, which was agreed to. But on the young bride telling her situation to her mother, the latter investigated the condition of the two partners, and learned that the husband was impotent; he, in short, had long been an inveterate smoker. A separation and divorce were immediately obtained, and the lady was married to Mr. J. M. After the ordinary time she became a mother.

136. Extracts from Dr. Budgett's instructive paper, on "The Tobacco Question, Morally, Socially, and Physically Considered:" 1857. Dr. Budgett remarks: "Two hundred and sixty years ago, tobacco smoking was described as 'a branch of the sin of drunkenness;' but during the last ten or fifteen years, the consumption of the weed has so increased, especially amongst young people, that we cannot even yet comprehend its influence or result.

"Still, the habits and manners of a country stamp its identity; and if a New Zealander, or any manly representative of any of our many conquered countries, which we call colonies, could place himself in London, Manchester, or any of our large cities, and ask to be shown the youth of our present time, the fathers of the next

generation, he would look in vain for the strength of limb, the Saxon energy, the *mens sana in corpore sano* which has carried us successfully in every land.

"If some old warrior read this, perchance he may smile with contempt; but, before he does so, I would recommend him to take his stand at nine in the morning in any thoroughfare leading to London; scan carefully the thin, pale faces on every omnibus; measure in his mind's eye the narrow shoulders, the shuffling walk of the great majority of pedestrians; and then let him tell me if he can recognize any of the manly elements which were, in his early day, the pride and glory of his country. No! Tobacco meets us at every corner: it smokes on every omnibus, like the reeking of a dung-hill; puppies, in the guise of officers and disguise of gentlemen, puff their impertinence into ladies' faces, who may be unprotected in the streets; tailors' clerks and shopboys, taking advantage (query!) of the early closing movement, light their cigars as they draw on their gloves for an evening's ramble; and little boys, from the costermonger to the crossing-sweeper, form smoking-clubs of from three to twelve, passing their one pipe from mouth to mouth, in the secluded nooks of every alley, from the railway arch to the mythical arcana of the Adelphi. It is here that vice grows strong in company, and here the little boy receives his first practical instruction in larceny from his more advanced confederates; around the pipe, young pickpockets hold their parliament.

That this is so, no one can deny. It is a grave and

important subject for any legislature to consider, which looks beyond the accepted rule of expediency.

“The medical profession in France bear similar testimony; for the ‘Dictionnaire des Sciences Médicales’—a work of which it would be high treason in Paris to doubt the authenticity—after detailing at length the effects of tobacco amongst the workmen employed in the government factories (for in France it is a monopoly of the State), goes on to say: “The abuse of tobacco is the same as of all other pleasures of excitement, whether excesses of various kinds, strong liquors, and so forth (*comme de celui de toutes les jouissances par irritation, comme de la masturbation, de l’abus des femmes, des liqueurs fortes, &c.*), and that it is astonishing that more numerous evils are not the result.’ Again: ‘Parents cannot too much oppose the fearful custom of using tobacco; often they allow it to begin with a culpable facility, and they do not appear to foresee all the evils to which they deliver the youth whom they permit to contract this baneful habit; often thoughtlessly recommended for some trifling ailment, the use of it is continued for the remainder of his days.’

“THE QUEEN’S TOBACCO PIPE.—We have seen pipes of all sorts and sizes in our time. In Germany, where the finest snaster is but twenty pence a pound, and excellent leaf tobacco only five pence, we have seen pipes that resembled actual furnaces, compared with the general race of pipes, and have known a man smoke out half a pound of snaster, and drink a gallon of beer at a sitting. But this is perfectly pigmy work when compared with the royal pipe and consumptive tobacco

power of Victoria of England. The Queen's pipe is, beyond all controversy — for we have seen it — equal to any other thousand pipes that can be produced from the pipal stores of this smoking world. She has not only an attendant to present it whenever she may call for it, but his orders are to have it always in the most admirable smoking state — always lighted, without regard to the quantity of tobacco it may consume; and, accordingly, her pipe is constantly kept smoking, day and night, without a moment's intermission; and there are, besides the grand pipe-master, a number of attendants incessantly employed in seeking the most suitable tobacco, and bringing it to the grand-master. There is no species of tobacco which the Queen has not in her store room. Shag, Pigtail, Cavendish, Manilla, Havana, Cigars, Cheroots, Negrohead, every possible species of nicotian she gives a trial to, by way of variety. A single cigar she holds in as much contempt as a lion would a fly by way of mouthful. We have seen her grand-master drop whole handfuls of Havanas at once into her pipe, and after them as many Cubas.

“It may abate the wonder of the reader at this stupendous smoking power of the Queen, when we admit, as must indeed have become apparent in the course of our remarks, that the Queen performs her smoking as she does many of her other royal acts, by the hands of her servants. In truth, to speak candidly, the Queen never smokes at all, except through her servants. And this will appear very likely, when we describe the actual size of her royal pipe. It is, indeed, of most imperial dimensions. The head alone is so large, that while its

heel rests on the floor of her cellar, its top reaches out of the roof. We speak a literal fact, as any one who procures an order for the purpose may convince himself by actual inspection. We are sure that the quantity of tobacco which is required to supply it must amount to some tons in the year. Nay, so considerable is it, that ships are employed specially to bring over this tobacco, and these ships have a dock of one acre in extent at the port of London, entirely for their exclusive reception. In a word, the Queen's tobacco-pipe, its dimensions, its attendance, its supply, and consumption of tobacco, are without any parallel in any age or nation."

Dr. Budgett adds: "The great Tobacco Warehouse is called the Queen's Warehouse, because it is rented by Government for £14,000 a year. This warehouse has no equal in any other part of the world. It is five acres in extent."

137. The following extract is from an article which appeared in the 178th number of "Cassell's Illustrated Family Paper," page 163. The statistics may be relied on, seeing that they are derived from various authentic sources, such as the writings of Husson, De Wateville, Soy, and other contributions by able authors, which will be found in the "Annuaire de l'Economie Politique," as well as obtained from official documents. If the report respecting the Emperor be true, his example affords another of the many melancholy proofs, which history supplies, of the prostration of power and trust, to the fallacious machinations of expediency—expediency which upsets that righteous administration for upholding which Kings are ordained to rule, and Princes to decree justice.

It confirms the unexceptional truth of the maxim, "that the love of money is the root of all evil." The advice of the sordid father to his son is not confined to private life, but extends to all ranks—the prince and the peasant alike—and is found in every age and country. "Make money, make money, my son, honestly if you can; but above all, *be sure to make money, be the consequences what they may.*" Where the greater power of doing mischief is vested, *there is the greater need to demand responsible action.* The prostitution of a nation's morals and health, for the sake of revenue, is an outrage to humanity—a curse to the progress of civilization. It is the destroying *bane* against which every philanthropic observer is called upon to impress "on the powers that be," that it is both their duty and interest to provide a compulsory antidote, as all other temporizing measures must fail.

"In the year 1854, Paris chewed, snuffed, and smoked 3,800,000 pounds of tobacco, for which it paid 17,725,263 francs. This poor justice must be done to the Parisians and to the French in general, that few of them are guilty of the peculiarly disgusting American form of tobacco vice. The quantity of the weed masticated is to that snuffed and smoked, as one to sixty-two, and has not increased per annum since 1839. The habit of taking snuff is on the decrease; that of smoking, on the contrary, has been of late years, and still is, in course of wonderful development. Formerly it was deemed an essentially vulgar practice, and was mainly confined to the estaminets; from them it spread to students' rooms and artists' attics, then reached the clubs, at last invaded

families, and 'the totality of the street,' and is now *à la mode* with all classes. As you are aware, the Emperor and Empress both smoke. If they had not a taste for tobacco, they might still indulge in, or rather subject themselves to its use, by way of setting an example, which his majesty has strong politico-economical reasons for wishing to see generally imitated. Between 1839 and 1854, the consumption of tobacco in all France nearly doubled in quantity. Whatever may be the vicious effect of the noxious weed on the popular health, this increased consumption helps to plump up the government finances curiously. The manufacture and sale of tobacco is, as my readers are aware, a State monopoly; but they are, perhaps, not aware of what M. Husson assures us is the fact, that it produces a clear yearly profit (*bénéfice net*,) of more than 100,000,000 of francs, or one-fifteenth of all the receipts of the public treasury."

138. In the *Lancet* for 14th March, 1857, page 250, Mr. Higginbottom quotes Sir David Brewster's memoir of Sir Isaac Newton, wherein he states :

"He was frugal in his diet, and in all his habits temperate. When he was asked to take snuff or tobacco, he declined, remarking '*that he would make no necessities to himself*' — a remark," says Mr. Higginbottom, "truly worthy of that great philosopher and Christian." My reasons for introducing the above are, that in many of the letters in the *Lancet*, on the tobacco controversy, the name of Sir Isaac Newton has been brought forward unwarrantably, by the advocates of the innocence of tobacco, to prove that that great mind was uninjured by

tobacco—a fact true only in this respect, that he never subjected himself to its influence.

139. Two additional cases, with illustrations, showing the effects of tobacco smoking upon the palate, tonsils, and tongue. These cases have lately occurred in the course of my own private practice.

T— R—, twenty-six years of age, a strong, brawny carter, who had smoked half-an-ounce or more of tobacco daily, for five years, complained of dyspepsia, hypochondriasis, and impotency. The velum palati and tonsils exhibit the dark livid red and velvety appearance so characteristically described by Mr. Solly in the *Lancet* of 14th February, 1857, an extract of which will be found at page 85. The tongue is loaded with a greenish-white fur. It is *to this condition of the palate and tongue* which Mr. Solly directs the attention of medical examiners of insurance offices.

140. Case of colloid cancer on the tongue, drawn up by Mr. Turton.

“W— R—, æt. thirty-two, a printer by trade, residing in —, says he did not begin to smoke or drink till he was twenty years old. Whenever he drank, he always smoked a very great deal; in fact, he says, the pipe was seldom or never out of his mouth. About twelve months ago, he first noticed an ulcer on his tongue, near its centre; notwithstanding, he kept on smoking and drinking to a very great extent—the ulcer continuing rapidly to spread at that time. He was then seen by some medical gentlemen, who touched the ulcer with caustic. A band of matter resembling curd came out, and left a hole. The patient, though this ulcer

greatly annoyed him, and was gradually extending, was not deterred from smoking and drinking, till two months ago, when he was obliged to desist, in consequence of the pain becoming excruciating when he put a pipe between his lips. He then began to notice notches, as he says, on either side of his tongue. Such was his state when I saw him on Sunday week. His articulation, as you may imagine, was not very distinct. The mucous membrane of the cheeks and fauces are in accordance with the description of Mr. Solly, who says 'he can always detect a smoker by examining his fauces; for they assume a velvety-red appearance, and by the congested state of the mucous membrane.' The pain from the tongue causes him many a sleepless night, and his headaches are excruciating; the pain in his throat, he says, is greatest. While lying in bed, he sometimes feels as if he was suffocating."

141. The following extracts from the article Tobacco, contained in the "Dictionnaire des Sciences Médicales," pp. 190, 191-195, 196, are so confirmatory of the opinion which I had formed respecting the injurious effects of tobacco on the animal organs and functions, that I cannot refrain to append them. That voluminous and valuable work* was compiled by the most learned and experienced physicians and surgeons in France.

"La préparation des tabacs exige un grand nombre d'ouvriers, et les émanations de cette plante sont si fortes et si malfaisantes qu'elles causent beaucoup d'inconvénients à ceux qui s'occupent de ce travail; ils sont en

* Dictionnaire des Sciences Médicales, par une Société de Médecins et de Chirugiens. Paris, 1821.

général maigres, décolorés, jaunes, asthmatiques, sujets aux coliques, au dévoiement, au flux de sang, mais surtout au vertige, à la céphalalgie, au tremblement musculaire, à un véritable narcotisme, et aux maladies plus ou moins aiguës de la poitrine, comme j'ai eu l'occasion de l'observer, soit dans les hôpitaux de Paris, ou ces ouvriers se voient fréquemment, soit dans les manufactures de tabac. Je possède dans mon recueil d'observations cliniques, plusieurs faits curieux en ce genre que j'aurais consignés ici sans la crainte d'être trop long. Ainsi, une substance aussi inutile cause des maux sans nombre, et la mort même à ceux chargés de préparer aux autres la plus insignifiante des jouissances."

"Les ouvriers, occupés ordinairement au tabac, dit Ramazzini, y gagnent des douleurs de tête violentes, des vertiges, des nausées, et des éternuements continuels. Il s'élève en effet dans cette opération une si grande quantité de parties subtiles, surtout en été, que tous les voisins en sont incommodés, et se plaignent d'envies de vomir. Les chevaux, occupés à tourner la meule (qui râpe la tabac), témoignent l'âcreté nuisible de cette poussière qui voltige, en agitant fréquemment la tête, en toussant et soufflant par les naseaux. Les ouvriers en tabac, ajoute-t-il plus loin, sont en général sans appétit. (Ramazzini *Mal. des Artisans*, traduction de Fourcroy, p. 189). Ce passage indique la nécessité de transporter les ateliers où l'on fabrique le tabac hors des villes à cause des incommodités dont ils peuvent être l'origine : c'est ce qui a lieu je crois, partout en France maintenant ; nous devons pourtant ajouter que l'on finit sinon par s'habituer à ces émanations nuisibles, du moins par

y être moins impressionables, car les ouvriers un peu anciens n'en sont presque plus tourmentés? Fourcroy, dans une note de la traduction citée, indique les ouvriers de la ferme de Cette en Languedoc pour ne s'en trouver aucunement incommodés."

"Il en est de l'abus de tabac comme de celui de toutes les jouissances par irritation, comme de la masturbation, de l'abus des femmes, des liqueurs fortes, etc. Et l'on doit encore être étonné de ne pas lui voir causer des accidens plus nombreux."

"Les parens ne sauraient donc trop s'opposer à la funeste habitude d'user de tabac: souvent on la laisse prendre avec une facilité blâmable, et l'on semble ne pas prévoir tous les maux, tous les chagrins auxquels on livre la jeunesse à qui on laisse contracter cette coutume vicieuse: conseillé souvent avec légèreté pour un coryza ou des douleurs passagères de tête, on continue ensuite d'en prendre le restant de ses jours."

"Les inconvéniens et les dangers attachés à l'usage du tabac ont été si évidens dès l'origine de l'introduction de cette plante en Europe, que des souverains ont cherché à s'opposer à son emploi. Amurat, empereur des Turcs, le grand-duc de Moscovie, le roi de Perse, en défendirent l'usage à leurs sujets sous peine de la vie ou d'avoir le nez coupé. Jaques Stuart, roi d'Angleterre, a fait un traité sur les inconvéniens du tabac. Il y a un bulle d'Urbain VIII. par laquelle il excommunie ceux qui prennent du tabac dans les églises; enfin les savans divisèrent beaucoup au sujet de ce végétal et en blâmerent l'emploi."

142. I have received several communications from

professional friends, strongly indicating the strength and extent of medical testimony against the use of the poisonous weed, and out of these I have selected one sent to me by a physician, who has long enjoyed extensive opportunities of witnessing the very prejudicial effects which tobacco smoking exercises on the digestive organs. "In the course of my professional experience," he writes me, "two or three cases of decided carcinoma of the under-lip, all of which terminated fatally, have come under my care, and which could be unmistakeably traced to a sore, occasioned by a burn from a hot cutty-pipe. But I have had ample opportunities of observing the evil effects which tobacco-smoking produces on the health of the working-classes, and particularly how it operates by disordering the organs of digestion, in occasioning very bad forms of dyspepsia. Several inveterate smokers have been committed to my charge, on whom every species of persuasion, from remonstrance on the part of their relations, to admonition on that of their clergymen, had been used in vain, to induce them to relinquish the habit of smoking, to which they had been long unhappily addicted. They had the sallow, sickly look of individuals in bad health, were attenuated in body, and labored under anorexia, painful digestion, and an irritable state of the nervous system, harassing to their own feelings, and most distressing to those of their family. Although they had resisted every argument and advice tendered by unprofessional parties, I have never failed to succeed in making the most obstinate smoker a convert to my opinion, upon reasoning with him upon the subject, and showing the *modus operandi*

of tobacco, in affecting his health and happiness, by its baneful influence on the process of digestion. And I can revert with much satisfaction to the grateful expressions I have received from many such patients on restoration to health, after following my recommendation 'to give up the use of tobacco,' as you have expressed it, 'for ever.'"

143. The following observations of the learned author of the *Zoonomia*, accord with the medical opinions which I have adduced regarding the injurious effects of tobacco on the digestive organs:—

Darwin, in his *Zoonomia*, vol. ii., page 701, thus observes: "The unwise custom of chewing and smoking tobacco for many hours in a day, not only injures the salivary glands, producing dryness in the mouth when this drug is used, but I suspect that it also produces scirrhus in the pancreas. The use of tobacco in this immoderate degree injures the powers of digestion, by occasioning the patient to spit out that saliva which he ought to swallow; and hence produces that flatulency which the vulgar unfortunately take it to prevent."

At page 80 of the same volume, he says: "I saw what I conjectured to be a tumor of the pancreas with indigestion, and which terminated in the death of the patient. He had been for many years a great consumer of tobacco, in so much, that he chewed that noxious drug all the morning, and smoked it all the afternoon."

144. The following extract is from the *Medical Times and Gazette* of 11th December, 1858:—

"To the Editor of the *Medical Times and Gazette*—
Sir, I enclose a copy of a circular, which I have found

it necessary to issue, as a caution to the officers of this department. I have seen several, and heard of more such cases occurring among the general public, few of whom are aware of the '*causa tanti mali*.'

"*Caution.*—The Medical Officer cautions the men against the practice of smoking short pipes—more particularly those, however, under the name of 'Meerschaum-washed pipes.' Several cases of diseases of the throat, gums, and stomach have recently occurred, traceable to this cause. The Meerschaum-washed pipes are frequently, if not always, prepared with powerful mineral acids; and the narcotic oils inhaled through them, exert a more than ordinarily pernicious influence on the health.'

WALLER LEWIS, M. B. Cantab.,

"Medical Officer to Her Majesty's Post Office.

"4th December, 1858."

145. I have brought forward, I trust, evidence sufficient to convince the most skeptical, that tobacco is a most deleterious drug, whether used in the form of smoke, snuff, or *quid*—all of which modes of administration, the public, and what is more surprising, the medical profession, seem hitherto to have regarded with most unaccountable nonchalance.

The authorities which I have adduced, condemning tobacco smoking, must be allowed, by every unprejudiced mind, greatly to outweigh, in real value, *all* those brought forward in favor of it, not a few of the latter writings having been *got up* from more than questionable motives.

Since the publication of my third edition, I have received accounts of not a few cases, and have had under my own treatment, several examples of ulceration of the lips, tongue, soft and hard palate, and of the mucous membrane of the cheek — some of these being purely carcinomatous and incurable: and all of which occurred in individuals greatly addicted to smoking tobacco. The number of patients frequenting my surgery in the mornings is upwards of 2000 annually, and these afford me an extensive field of surgical observation in every department. It would appear that the cigar, or pipe, first produces a small blister of the mucous membrane of the mouth, which, being daily irritated by the pungent weed, progressively ulcerates and becomes cancerous. I am decidedly of opinion, that a cigar or pipe, impregnated with this cancerous fluid, is a ready medium to communicate the disease to another person who uses the same cigar or pipe.

THE END.

A CLASSIFIED LIST
OF
WORKS
ON
MEDICINE, SURGERY,
AND
THE COLLATERAL SCIENCES,

PUBLISHED BY
LINDSAY & BLAKISTON,
PHILADELPHIA.

MANY OF THEM
AT GREATLY REDUCED PRICES.

Descriptive Catalogues
FURNISHED FREE UPON APPLICATION.

**ALL BOOKS MAILED POSTAGE FREE UPON RE-
CEIPT OF RETAIL PRICE.**

Lindsay & Blakiston's Physician's Visiting-List,

PUBLISHED ANNUALLY.

Sizes and Prices.

| | | |
|-------------------------|---------------------------|------|
| For 25 patients weekly. | Tucks, pocket and pencil, | 1 00 |
| 50 " " " " | " " " " | 1 25 |
| 75 " " " " | " " " " | 1 50 |
| 100 " " " " | " " " " | 2 00 |
| 50 " " 2 vols. | { Jan. to June, } " 2 50 | |
| | { July to Dec. } | |
| 100 " " 2 vols. | { Jan. to June, } " 3 00 | |
| | { July to Dec. } | |

INTERLEAVED EDITION.

| | |
|---|------------------|
| For 25 patients weekly, interleaved, tucks, pock'ts, &c., | 1 25 |
| 50 " " " " " " | 1 50 |
| 50 " " 2 vols. { Jan. to June, } | " 3 00 |
| | { July to Dec. } |

This Visiting-List has now been published *twenty-six years*, and has met with such uniform and hearty approval from the profession, that the demand for it has steadily increased from year to year.

SYDENHAM SOCIETY'S PUBLICATIONS.

New Series. 1859 to 1877, inclusive; 19 years, 76 vols. Subscriptions received, and back years furnished at \$10.00 per year. Full prospectus, with the Reports of the Society and a list of the books published, furnished free upon application.

VOLUMES FOR 1877 NOW READY.

- Smellie's Midwifery.* By Dr. McClintock. Vol. II.
Dr. Neale's Digest of Medical Periodicals for the last 30 Years.
Billroth's Lectures on Surgery. Vol. II.
Atlas of Pathology. Fasciculus I.—Diseases of the Kidney. 4to. Colored Plates.

PROPOSED SERIES FOR 1878.

- Bibliotheca Therapeutica.* By Dr. Waring. Vol. I ready.
Smellie's Midwifery. Vol. III. ready.
Dr. Latham's Works. Vol. II. nearly ready.
Mayne's Lexicon. Part I.
Atlas of Pathology. Fasciculus II.

LINDSAY & BLAKISTON'S

MEDICAL PUBLICATIONS.

PRACTICE OF MEDICINE.

| | |
|---|-------|
| ROBERTS' Theory and Practice of Medicine. Second Ed., revised and enlarged. Cloth, 5.00; Leather, | 6 00 |
| TANNER's Practice of Medicine. Sixth Amer. Ed., revised and enlarged. Cloth, 6.00; Leather..... | 7 00 |
| AITKEN's Science and Practice of Medicine. Third Amer. Ed. 2 vols., royal octavo. 2000 pages and numerous illustrations. Cloth, 12.00; Leather... | 14 00 |
| TROUSSEAU's Lectures on Clinical Medicine. Complete in 2 vols., octavo. Cloth, 8.00; Leather..... | 10 00 |
| FOSTER's Lectures and Essays on Clinical Medicine, | 3 00 |
| CHARTERIS' Hand-Book of the Practice of Medicine, | 2 00 |
| CORMACK's Clinical Studies. 2 vols., octavo..... | 5 00 |
| MAXSON's Practice of Medicine. Octavo..... | 3 00 |
| TANNER's Index of Diseases. New Edition..... | 3 00 |
| HOLDEN's Landmarks, Medical and Surgical. 2d Author's Edition..... | 1 00 |

THERAPEUTICS AND MATERIA MEDICA.

| | |
|--|------|
| WARING's Manual of Practical Therapeutics. Third American Edition. Cloth, 4.00; Leather..... | 5 00 |
| BIDDLE's Materia Medica, for Students. Eighth Revised Edition; with illustrations..... | 4 00 |
| ROYLE & HARLEY's Materia Medica and Therapeutics. Sixth Edition. 139 illustrations..... | 5 00 |
| PEREIRA's Physicians' Prescription-Book. Fifteenth Edition. Cloth, 1.00; Tucks..... | 1 25 |
| HEADLAND on the Action of Medicine in the System. Sixth American Edition..... | 3 00 |
| BEASLEY's Book of 3000 Prescriptions. Fifth Ed. | 2 50 |
| BEASLEY's Pocket Formulary. Tenth Edition..... | 2 50 |
| THORROWGOOD's Students' Guide to Materia Medica. | 2 00 |
| WYTHE's Pocket Dose and Symptom Book. Eleventh Revised Edition. Cloth, 1.00; Tucks..... | 1 25 |
| ANSTIE's Stimulants and Narcotics..... | 3 00 |
| REES's American Medical Formulary..... | 1 50 |
| OTT on the Action of Medicine. 8vo..... | 2 00 |

OBSTETRICS.

| | |
|---|-------|
| CAZEAX's Great Work on Obstetrics. Fifth Ed., greatly enlarged and improved. 175 illustrations. Cloth, 6.00; Leather..... | 7 00 |
| MEADOW's Manual of Midwifery. Second Amer. Edition, revised and enlarged. 145 illustrations, | 3 00 |
| ROBERTS' Students' Guide to the Practice of Midwifery. 95 illustrations..... | 2 00 |
| CLAY's Handbook of Obstetric Surgery. 101 illus.. | 2 00 |
| RIGBY's Obstetric Memoranda. Fourth Edition... | 50 |
| TYLER SMITH's Obstetrics. Illustrated..... | 5 00 |
| SCHULTZE's Lecture Diagrams in Pregnancy and Midwifery. 20 Maps, imperial size, colored. In sheets, 15.00; mounted..... | 25 00 |
| CORR's Obstetric Catechism..... | 2 25 |

DISEASES OF WOMEN.

| | |
|--|------|
| HEWITT's Diagnosis, Pathology, and Treatment of Diseases of Women. Third Ed., revised and enlarged. 132 illustrations. Cloth, 4.00; Leather, | 5 00 |
| SMITH's Practical Gynæcology. With plates..... | 2 00 |
| BYFORD on Women. Second Edition, enlarged..... | 5 00 |
| BYFORD on the Chronic Inflammation and Displacement of the Unimpregnated Uterus. Second Ed. 46 illustrations..... | 2 50 |
| ATHILL's Clinical Lectures on Diseases Peculiar to Women. 2d Ed., revised and enlarged, with illus., | 2 00 |
| AGNEW's Lacerations of the Female Perineum, and Vesico-Vaginal Fistula. 75 illustrations..... | 1 50 |
| TILT on Change of Life in Health and Disease..... | 3 00 |
| HODGE on Fœticide or Criminal Abortion | 50 |
| DILLNBERGER's Handy Book of the Treatment of Women and Children's Diseases..... | 1 50 |
| HODGE's Note-Book for Cases of Ovarian Tumors. | 50 |
| SCANZONI's Diseases of Sexual Organs of Women... | 5 00 |

DISEASES OF CHILDREN.

| | |
|--|------|
| MEIGS & PEPPER's Practical Treatise on the Diseases of Children. Sixth Edition, enlarged and improved. Cloth, 6.00; Leather..... | 7 00 |
| TANNER & MEADOW's Practical Treatise on the Diseases of Infancy and Childhood. Third Ed... | 3 00 |
| HILLIER's Clinical Treatise on Diseases of Children, | 2 00 |
| SMITH's Diseases of the Lungs in Children..... | 2 50 |
| ELLIS's Manual of the Diseases of Children. 3d Ed. | 2 50 |

SURGERY.

| | |
|--|-------|
| GANT , The Science and Practice of Surgery. 2d Ed. 1000 illustrations. 2 Vols..... | |
| HEATH's Operative Surgery. 20 large colored plates, each containing numerous figures. 4to. Complete in five parts, each 2.50; in Cloth..... | 14 00 |
| HUTCHINSON's Illustrations of Clinical Surgery. Consisting of plates, photographs, wood-cuts, dia- grams, &c., with descriptive letter-press. Folio. Nine parts now ready, each..... | 2 50 |
| HEATH's Manual of Minor Surgery and Bandaging. 86 illustrations. Fifth Edition..... | 2 00 |
| CLAY's Handbook of Obstetric Surgery. Third Edition. 101 illustrations..... | 2 00 |
| SWAIN's Surgical Emergencies. 82 illustrations, | 2 00 |
| MAUNDER's Operative Surgery. 164 illustrations, | 2 50 |
| MAUNDER's Surgery of the Arteries. 18 illus..... | 1 50 |
| DRUITT's Surgeon's Vade-Mecum. Eleventh Lon- don Edition. 370 illustrations..... | 5 00 |
| NORRIS's Contributions to Practical Surgery..... | 4 00 |
| PAGET's Surgical Pathology. Third Ed. 130 illus., | 7 50 |
| LE GROSS CLARK's Outlines of Surgery. 2d Ed..... | 3 00 |
| COOPER's Surgical Dictionary. 2 vols. Eighth Ed., | 15 00 |
| HEWSON's Earth as a Topical Application in Sur- gery. With illustrations..... | 2 50 |
| TOLAND's Practical Surgery. Illustrated. Cloth... | 4 50 |
| MEARS' Practical Surgery. Illustrated. 12mo..... | |

PATHOLOGICAL HISTOLOGY AND ANATOMY.

| | |
|---|-------|
| RINDFLEISCH's Text-Book of Pathological Histol- ogy. 208 illustrations. Cloth, 5.00; Leather..... | 6 00 |
| WILKS & MOXON's Pathological Anatomy. Second Edition. 7 steel plates..... | 6 00 |
| HANDFIELD JONES' Sieveking & Payne's Patholog- ical Anatomy. Second Edition, 195 illustrations, | 6 00 |
| WILSON's Anatomist's Vade-Mecum. Ninth Lon- don Edition. 375 illustrations..... | 5 00 |
| BRADLEY's Comparative Anatomy. 60 illustrations, | 2 00 |
| WAGSTAFFE's Human Osteology. 188 illustrations, | 3 00 |
| RUTHERFORD's Histology..... | 2 00 |
| FORBIEPI Atlas Anatomicus. Colored plates..... | 10 00 |
| BRAUNE's Atlas of Topographical Anatomy, with marginal References, text, &c. Cloth, \$12.00; half morocco..... | 14 00 |
| HOLDEN's Manual of Dissection. 4th London Ed. | |
| HOLDEN's Human Osteology. Fifth London Ed..... | |
| HOLDEN's Landmarks, Medical and Surgical..... | 1 00 |
| GODLEE's Anatomical Atlas. 18 parts, each..... | 2 50 |

PHYSIOLOGY.

| | |
|--|-------|
| SANDERSON, FOSTER, KLEIN, AND BRUNTON's Physiological Text-Book. 350 illustrations. Cloth, 6.00; Leather | 7 00 |
| MARSHALL's Physiological Diagrams. 11 maps, life-size, colored and mounted | 80 00 |
| REESE's Analysis of Physiology. Second Edition, | 1 50 |
| OTT's Physiological Action of Medicines..... | 2 00 |
| BEALE on Disease Germs. Second Edition..... | 4 00 |
| BEALE on Bioplasm, or Physiology of Life..... | 3 00 |
| BEALE on Protoplasm, or Matter and Life. 3d Ed. | 4 00 |
| CARPENTER's Human Physiology. Eighth Edition, by Power..... | 5 50 |
| VIRCHOW's Cellular Pathology. 144 illustrations... | 5 00 |
| VIRCHOW's Post-Mortem Examinations..... | 75 |

CHEST, HEART, THROAT, AND LUNGS.

| | |
|---|------|
| COHEN on Inhalation, its Therapeutics and Practice. Second Edition. Cases and illustrations.... | 2 75 |
| JAMES, Sore Throat. Colored plates..... | 2 00 |
| HAYDEN's Diseases of the Heart and Aorta. 2 vols., 1200 pages, 81 illustrations..... | 6 00 |
| BALFOUR's Clinical Lectures on Diseases of the Heart and Aorta. Illustrations..... | 4 00 |
| FOTHERGILL on the Heart and its Diseases | 5 00 |
| MACKENZIE's Growths in the Larynx. Colored and other illustrations..... | 2 50 |
| MACKENZIE's Pharmacopœia for Diseases of the Throat. Third Edition..... | 1 25 |
| THOROWGOOD's Notes on Asthma. Second Edition, | 1 50 |
| SANSON's Physical Diagnosis Diseases of the Heart, | 1 50 |
| STOKES on the Heart and Aorta..... | 3 00 |
| GREENHOW on Chronic Bronchitis..... | 1 50 |
| WATERS on Diseases of the Chest. Second Edition, revised, with illustrations..... | 4 00 |
| BARTH & ROGERS' Auscultation and Percussion... | 1 00 |
| THORNTON on Tracheotomy, with illustrations..... | 1 75 |
| DOBELL on Winter Cough, Catarrh, Bronchitis, &c. Third Edition..... | 3 00 |
| RUPPNER's Laryngoscopy and Rhinoscopy. 59 illustrations..... | 1 50 |
| THOMPSON on Colds and Coughs..... | 60 |
| FERBER's Dissected Diagram of the Thorax. Small 4to.... | 2 25 |

GENERATIVE AND URINARY ORGANS, KIDNEYS, LIVER, &c.

| | |
|---|-------|
| HARLEY on Urine and Its Derangements. Second Edition, revised and enlarged. Preparing. | |
| ACTON on the Reproductive Organs. Fourth Ed... | 2 50 |
| BLACK's Functional Diseases of the Renal, Urinary and Reproductive Organs..... | 2 00 |
| BLACK on Bright's Disease. Illustrations..... | 1 50 |
| GANTS' Diseases of the Bladder, Prostate Gland, &c. 20 illustrations. Fourth Edition..... | 3 50 |
| TYSON's Examination of the Urine. Illustrations, | 1 50 |
| THUDICUM on the Pathology of the Urine, its Analysis, &c..... | 5 00 |
| LEGG's Examination of the Urine. Fourth Edition, | 75 |
| THOMPSON's Preventive Treatment of Calculus Diseases | 1 00 |
| DURKEE on Gonorrhœa and Syphilis. Colored plates. Sixth Edition | 3 50 |
| BUZZARD on Syphilitic Nervous Affections..... | 1 75 |
| LEWIN on the Treatment of Syphilis. Plates..... | 1 50 |
| GREENHOW on Addison's Disease. Colored plates, | 3 00 |
| BEALE on Kidney Diseases, Urinary Deposits, and Calculous Disorders. 415 illustrations..... | 10 00 |
| BASHAM's Diagnosis of Kidney Diseases. 60 ills... | 2 00 |
| WARD on the Liver and Intestinal Canal..... | 2 50 |
| HABERSHON on the Liver..... | 1 50 |

DISEASES OF THE EYE AND EAR.

| | |
|---|-------|
| SOLLBERG WELLS on the Eye. Third London Ed. With ophthalmoscopic plates, numerous engravings, &c. Cloth, 5.00; Leather..... | 6 00 |
| WALTON's Diseases of the Eye. Third Edition, enlarged, over 300 illustrations..... | 9 00 |
| MACNAMARA's Manual of Diseases of the Eye. 3d Edition, many illustrations..... | 4 00 |
| LAWSON's Diseases and Injuries of the Eye. Illus., | 2 00 |
| LIEBRICH's Ophthalmoscopic Atlas. 4to, col'd pl'ts, | 15 00 |
| FENNER on Vision, its Optical Defects, &c. 74 ills. | 3 50 |
| DIXON's Guide to the Diseases of the Eye..... | 2 00 |
| DALBY's Diseases and Injuries of the Ear. With 21 illustrations | 1 50 |
| TOYNBEE on the Ear, by Hinton. Illustrated..... | 5 00 |
| JONES' Aural Surgery. Illustrated. 12mo..... | 1 50 |

CHEMISTRY, PHARMACY, BOTANY.

| | |
|--|-------|
| SUTTON'S Systematic Hand-Book of Volumetric Analysis. Third Edition. 74 illustrations..... | 5 50 |
| BLOXAM'S Chemistry, Inorganic and Organic. Ed. 276 illustrations. Cloth..... | 4 00 |
| BLOXAM'S Laboratory Teaching. Third Ed. 89 ills. | 2 00 |
| KOLMEYER'S Chemia Coartata, a Key to Modern Chemistry..... | 2 25 |
| FRANKLAND'S How to Teach Chemistry. Illust'd, | 1 25 |
| VACHER'S Primer of Chemistry. Includ. Analysis... | 50 |
| HARDWICH'S & DAWSON'S Photographic Chemistry. Eighth Edition..... | 2 00 |
| BERNAY'S Notes on Chemistry..... | 1 25 |
| SWERINGEN'S Pharmaceutical Lexicon. A Dictionary of Pharmaceutical Science. Cloth, \$3; Leath. | 4 00 |
| COOLEY'S Cyclopaedia of Practical Receipts. 5th Ed. | 10 00 |
| BRANSTON'S Hand-Book of Practical Receipts..... | 1 50 |
| BEASLEY'S Druggists' General Receipt-Book. 7th Ed. | 2 50 |
| BENTLEY & TRIMEN'S Medicinal Plants. To be completed in 40 parts, 34 parts now ready. 8 colored plates in each. Price..... | 2 00 |
| DARLINGTON'S Flora Cestricea, with Glossary, &c..... | 2 25 |
| FOWNE'S Chemistry. 12th Edition. 2 vols..... | 7 00 |
| TIDY'S Hand-Book of Modern Chemistry. 8vo..... | 5 00 |

DENTISTRY.

| | |
|--|------|
| HARRIS' Principles and Practice of Dentistry. Tenth Revised Edition. 400 illustrations. Cloth, 6.50; Leather..... | 7 50 |
| HARRIS' Dictionary of Medical Terminology, Dental Surgery, &c. Fourth Edition. Cloth..... | 6 50 |
| HEATH on the Injuries and Diseases of the Jaws.... | 5 00 |
| COLES on Dental Mechanics. 140 illustrations..... | 2 00 |
| LEBER & ROTTENSTEIN on Dental Caries. With ills. | 1 25 |
| RICHARDSON'S Practical Treatise on Mechanical Dentistry. Second Edition, enlarged. Over 150 illustrations. Cloth, \$4.00; Leather..... | 4 50 |
| TAPP'S Practical Treatise on Operative Dentistry. Third Edition. 128 illustrations. Cloth,..... | 4 25 |
| TOMES' Dental Surgery. Second Edition, revised and enlarged. 263 illustrations..... | 5 00 |
| TOMES' Dental Anatomy and Physiology. 179 ills. | 3 50 |
| HANDY'S Text-Book of Anatomy. 312 illus..... | 3 00 |

| | |
|---|------|
| WEDL's Pathology of the Teeth. Their Anatomy and Physiology. 105 illustrations. Cloth, 8.50; Leather..... | 4 50 |
| FOX on the Human Teeth. 250 illustrations..... | 4 00 |
| SEWILL's Students' Guide to Dental Anatomy, Surgery, and Extraction of Teeth. 77 illustrations.. | 1 50 |
| STOCKEN's Materia Medica. 2d Edition. 12mo..... | |

THE MICROSCOPE.

| | |
|--|------|
| WYTHE's Microscopists' Manual and Text-Book. Third Edition. 205 illustrations..... | 4 50 |
| CARPENTER's Microscope and its Revelations. Fifth Edition. 475 illustrations..... | 5 50 |
| BEALE's Microscope and Practical Medicine. Fourth Edition. 500 illustrations..... | 8 00 |
| MACDONALD's Microscopical Examination of Drinking Water. Plates, etc..... | 3 00 |
| MARTIN's Microscopic Mounting. 100 illustrations, | 3 00 |
| RUTHERFORD's Practical Histology. Second Edition. 63 illustrations..... | 2 00 |

PSYCHOLOGICAL, FORENSIC MEDICINE, TOXICOLOGY, &c.

| | |
|---|------|
| WOODMAN & TIDY's Text-Book of Forensic Medicine and Toxicology. Numerous illustrations..... | 7 50 |
| BUCKNILL & TUKE's Psychological Medicine. Third Edition, much enlarged. Numerous illustrations, | 8 00 |
| BROWNE's Medical Jurisprudence of Insanity. Second Edition..... | 5 00 |
| SHEPPARD on Madness. Octavo..... | 2 50 |
| ELAM, Cerebralia and other Diseases of the Brain..... | 2 50 |
| VAN DER KOLK's Pathology and Therapeutics of Mental Diseases..... | 3 00 |
| OGSTON's Lectures on Medical Jurisprudence. 8vo. | 6 00 |
| SANKEY's Lectures on Mental Diseases..... | 3 25 |
| TANNER's Memoranda of Poisons. A new enlarged Edition..... | 75 |

ELECTRICITY.

| | |
|--|------|
| TIBBITT's Hand-Book of Medical Electricity. 64 illustrations..... | 1 50 |
| REYNOLDS' Clinical uses of Electricity. 2d Ed..... | 1 00 |
| ALTHAUS' Electricity, Theoretical and Practical. Third Edition. 146 illustrations..... | 6 00 |
| DUCHENE's Localized Electricity. Illust. 8vo..... | 3 00 |

SKIN AND HAIR.

| | |
|--|-------|
| FOX'S Atlas of Skin Diseases. 72 large folio colored plates. With descriptive text notes, &c. Complete in eighteen parts, each 2.00; or 1 vol., cloth..... | 30 00 |
| ANDERSON on Eczema. Third Revised Edition... | 2 75 |
| WILSON on the Preservation and Management of the Skin and Hair..... | 1 00 |
| COTTLE on the Hair in Health and Disease..... | 75 |
| GODFREY on the Diseases of the Hair..... | |

HYGIENE AND POPULAR MEDICINE.

| | |
|--|------|
| BENNETT on Nutrition in Health and Disease. Third Edition..... | 2 50 |
| BIRCH on Constipated Bowels. Causes and Means of Cure. Third Edition..... | 1 00 |
| CHAVASSE on the Mental Culture and Training of Children..... | 1 00 |
| DAY, Headaches, their Causes, Nature, and Treatment. 2d Edition..... | 2 00 |
| SAVORY'S Compendium of Domestic Medicine..... | 50 |
| HUFELAND'S Art of Prolonging Life. Edited by Erasmus Wilson, M.D., F.R.S..... | 1 00 |
| JONES' Defects of Sight and Hearing. Third Ed.... | 50 |
| LEARED on Imperfect Digestion. Fifth Edition.... | 1 75 |
| LIZARS on the Use and Abuse of Tobacco..... | 50 |
| MADDEN'S Principal Health Resorts of Europe and Africa..... | 2 50 |
| MILLER on Alcohol. Its Use and Abuse..... | 50 |
| MILLER on Alcohol, and LIZAR'S on Tobacco. One volume..... | 1 00 |
| COTTLE, The Hair in Health and Disease..... | 75 |
| PARKE'S Manual of Practical Hygiene. Fifth Edition. Illustrations..... | 6 00 |
| RYAN'S Philosophy of Marriage. In its Social, Moral, and Physical Relations. 12mo..... | 1 00 |
| SMITH'S Lectures on Nursing. 26 engravings..... | 2 25 |
| WILSON on the Skin and Hair. Their Preservation, &c. Eighth Edition..... | 1 00 |
| WILSON'S Hygiene and Sanitary Science. Third Edition. Illustrated..... | 3 00 |
| WALKER on Intermarriage. With illus'ns. 12mo, | 1 00 |
| WRIGHT on Headaches. Their Causes and Cure.... | 50 |
| WILSON'S Domestic Hygiene..... | 60 |
| THOMPSON on Colds and Coughs..... | 1 00 |
| DOMVILLE'S Hospital Nurses..... | 1 00 |
| WILSON, Naval Hygiene. Illustrations..... | |

MISCELLANEOUS.

| | |
|--|-------|
| ADAMS on Club-Foot. Enlarged Edition, illust'd, | 5 00 |
| ADAMS on Rheumatic Gout. Second Edition. With a 4to Atlas of Plates. 2 vols..... | 8 50 |
| ALLINGHAM on the Rectum. Second Edition..... | 2 00 |
| ANSTIE on Stimulants and Narcotics,..... | 3 00 |
| ARNOTT on Cancer, its Varieties, &c. Illustrations, | 2 25 |
| BASHAM on Dropsy. Sixteen plates. Octavo..... | 5 00 |
| BRODHURST on Deformities. New Edition, illust'd, | 6 00 |
| CARSON's History University of Pennsylvania..... | 2 00 |
| CLARKE's Diseases of the Tongue..... | 5 00 |
| CLEVELAND's Pronouncing Medical Lexicon. 19th Edition. Cloth, 1.00; Tucks..... | 1 25 |
| COBBOLD on Worms..... | 2 00 |
| CURLING on the Rectum. Fourth Edition..... | 2 75 |
| DAY on Headaches. 2d Edition..... | 2 00 |
| DUNGLISON's History of Medicine..... | 2 50 |
| DUNGLISON's Practitioners' Reference Book..... | 3 50 |
| FLINT on Continued Fevers. 164 Cases. Octavo... | 2 00 |
| GROSS's American Medical Biography..... | 3 50 |
| HOLDEN on the Sphygmograph. 300 illustrations, | 2 00 |
| VIRCHOW on Post-Mortem Examinations. 16mo... | 75 |
| LIVING on Megrin, Sick-Headache, &c..... | 6 00 |
| MARSDEN's New Mode of Treating Cancer. Col- ored plates..... | 3 50 |
| MAYNE's Medical Vocabulary. Fourth Edition.... | 3 00 |
| MENDENHALL's Manual of Examinations in Every Branch of Medicine, Surgery, &c. 224 ills..... | 2 00 |
| OVERMAN's Practical Mineralogy, Assaying, &c.... | 1 00 |
| PIGGOTT on Copper Mining, Copper Ore, &c..... | 1 00 |
| PRINCE's Galvano-Therapeutics..... | 1 25 |
| PRINCE's Plastic and Orthopedic Surgery. Illust., | 4 50 |
| RADCLIFF on Epilepsy, Pain, Paralysis, &c. Illus.. | 1 50 |
| RIHL and O'CONNOR's Physician's Account Book.. | 7 50 |
| SIEVEKING on Life Assurance..... | 2 25 |
| STILLE's Cerebro-Spinal Meningitis. Octavo..... | 2 00 |
| SANSOM on Chloroform, its Action and Adminis- tration..... | 1 50 |
| Sydenham's Society's Publications. New series. (See page 2.) Per annum..... | 10 00 |
| Sydenham Reports on the Progress of Medicine, &c., | 2 00 |
| The Pennsylvania Hospital Reports. 2 vols., each | 2 00 |
| The Physician's Visiting List. Various sizes and prices. (See page 2.) | |
| TRANSACTIONS College of Physicians. New series. | |
| Vols. 1, 2 and 3. Each volume..... | 2 50 |
| TURNBULL on Anæsthesia. Paper, .75; cloth..... | 1 00 |
| WILKES' Nervous Diseases..... | 5 00 |

IMPORTANT NEW ILLUSTRATED WORKS.

- BRAUNE's Atlas of Topographical Anatomy.** After Plane Sections of Frozen Bodies, containing 34 full-page photographic plates and numerous other illustrations on wood. Translated and edited by Edward Bellamy, F.R.C.S., Lecturer on Anatomy and Teacher of Operative Surgery, Charing Cross Hospital. A large quarto volume. Cloth, 12.00; Half Morocco,..... 14 00
- SAVAGE's Surgery, Surgical Pathology, and Surgical Anatomy of the Female Pelvic Organs,** in a series of colored plates, taken from nature, with commentaries, notes, and cases. Third Edition, greatly enlarged. A quarto volume..... 14 00
- Fox's Atlas of Skin Diseases.** Complete in 18 parts, each containing four chromo-lithographic plates and numerous figures, with descriptive text and notes upon treatment. Royal 4to. Price of each part, 2.00; bound in Cloth..... 30 00
- HEATH's Operative Surgery.** With plates drawn from nature, and colored by hand. Each part containing four plates, and numerous figures. Imperial Quarto. Complete in five parts, each 2.50; in Cloth..... 14 00
- HUTCHINSON's Illustrations of Clinical Surgery.** Consisting of plates, photographs, wood-cuts, diagrams, &c., illustrating surgical diseases, symptoms, and accidents; also, operations and other methods of treatment. With descriptive letter-press, &c. In quarterly fasciculi. Imperial 4to. Ten fasciculi now ready. Each..... 2 50
- BENTLEY & TRIMEN's Medicinal Plants.** Being descriptions, with original figures, of the principal plants employed in medicine, and an account of their properties and uses. To be completed in about Forty monthly parts. With colored illustrations, natural size. Large 8vo. Thirty-four parts now ready. Each..... 2 00
- GODLEE's Anatomical Atlas.** To be completed in 12 or 13 folio parts, with references, &c. 4 plates in each. Four ready. Price per part..... 2 50

Subscriptions received by the Publishers to be delivered or sent free by mail or express. Full Prospectuses furnished on application. GOOD CANVASSING AGENTS are wanted for these and other important Medical Works now in course of publication.

**LINDSAY & BLAKISTON, Publishers,
PHILADELPHIA.**

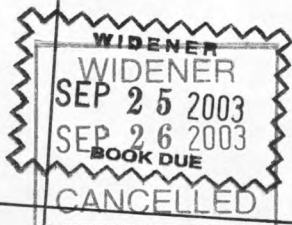


3 2044 058 134

The borrower must return this item on or before the last date stamped below. If another user places a recall for this item, the borrower will be notified of the need for an earlier return.

*Non-receipt of overdue notices does **not** exempt the borrower from overdue fines.*

Harvard College Widener Library
Cambridge, MA 02138 617-495-2413



Please handle with care.
Thank you for helping to preserve
libr...rd.

